

A composite image showing various military aircraft and ground vehicles. In the sky, a V-22 Osprey and a Cessna-like aircraft are flying. On the water, a boat is moving through waves. On the ground, a tank and other armored vehicles are positioned in a field. The overall scene suggests a military operation or exercise.

Concepts & Issues '98
Building A Corps
For The
21st Century

United States Marine Corps

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Building a Corps for the 21st Century

The 21st century, by all indications, will be a century of change. Changing global political alliances, demographics, and economic power, when combined with the rapid infusion of accessible high-technology weapons and information systems will alter both the way our Nation projects military power, and the way our adversaries will counter that power projection. In the future our adversaries will be flexible, adaptive,

and highly lethal. They will design asymmetric strategies to counter our strengths and exploit our weaknesses. They will attempt to fight us where they believe we are weakest -- in the cities and in close terrain. They will also target fixed air and port facilities and supply depots in an attempt to deny us access.

To prevail in this future strategic environment the United States must field an agile and adaptable Marine Corps, a sea-based force that can shape the environment to prevent crises, quickly react to global conflict, handle missions ranging from humanitarian relief to high-intensity conflict, and function in terrain ranging from open ocean to Third World urban slums. In this, the 16th edition of *Concepts and Issues*, we explain how the Marine Corps is building that force today by: modernizing our forces to conduct Operational Maneuver from the Sea (OMFTS); institutionalizing our commitment to innovation; and most importantly, enhancing the individual Marine.

While the Marine Corps is actively preparing to win our Nation's battles in the 21st Century, we are doing so while maintaining our forward deployed, expeditionary and ready posture. Today, over 22,000 Marines are forward deployed, at the tip of our Nation's spear, ready to fight and win. You don't have to wait for them to mobilize and deploy to theater. They are in theater right now -- a naval combined-arms, air-ground team -- in position and waiting for the word to strike.

Concepts and Issues 1998 is designed to identify what the Corps is doing for the Nation today, our requirements for the future, and the programs underway that will meet those requirements. Above all, it reaffirms to the American people that the Corps is doing what it takes to remain the force that is the most ready when the Nation is least ready -- the Nation's force of choice -- a certain force for an uncertain world. Just as it has for over two centuries, when American lives, liberty, and happiness are threatened -- the Nation will have one thought: "Send in the Marines."



Charles C. Krulak
General, U.S. Marine Corps
Commandant of the Marine Corps

Chapter 1

The Nation's Premier Crisis Response Force

The United States Marine Corps exists to make Marines and win battles for our Nation. For 222 years, Marines forged in the cauldron of recruit training and officer candidate school, and steeled by shared hardship and sacrifice, have carried the day on battlefields such as Princeton, Tripoli, Chapultepec, Belleau Wood, Guadalcanal, Iwo Jima, Inchon, Hue City, and the oil fields of Southwest Asia. In doing so, the Marines have rightfully earned a reputation for readiness, valor, and warfighting excellence unmatched in the history of the world. As such, when threats to our national interests arise, the American people have come to depend upon the Marine Corps to be ready to respond – immediately – and decisively.





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...to our national interests, the American people demand that we respond, we do. We do it with the same spirit of determination, the same sense of duty, and the same sense of honor that has defined our Corps for 222 years.



A National Force-in-Readiness

This requirement for readiness was formally set in 1952, when the Second Session of the 82nd Congress, armed with fresh memories of near disaster in the opening days of the Korean War, wrote into law the Marine Corps' role in our national security. The words of the committee report remain strikingly pertinent today:

“. . . American history, recent as well as remote, has fully demonstrated the vital need for the existence of a strong force-in-readiness. Such a force, versatile, fast-moving, and hard-hitting, . . . can prevent the growth of potentially large conflagrations by prompt and vigorous action during their incipient stages. The nation's shock troops must be the most ready when the nation is least ready . . . to provide a balanced force-in-readiness for a naval campaign and, at the same time, a ground and air striking force ready to suppress or contain international disturbances short of large scale war....”

Acting on this concept, Congress passed legislation to “insure the maintenance of a Marine force-in-readiness for the purposes of: (1) Conducting land operations essential to a naval campaign, (2) Suppressing minor international disturbances, and (3) Such other duties as the President may prescribe.” The Committee went on to note that “the need for Marines as a ready force is paramount... The force that must be most ready when the Nation is least ready.” This state of continual readiness is much more than just the law -- it is the expectation of the American people. The Marine Corps is dedicated to uphold this responsibility.



The Marine Air-Ground Task Force (MAGTF)

To fill this unique role, the Marine Corps organizes its forces for employment by integrating four functional elements: ground combat, air combat, combat service support, and command and control into one cohesive, task-organized unit. We call these highly adaptable organizations MAGTFs. With their flexible task organizations and an integrated combined-arms structure, MAGTFs provide a self-contained and self-sustained force, operating from protected sea-bases and capable of being configured to meet any contingency.



Post Cold War realities have underscored the fact that the Nation requires a Marine Corps now more than ever. During the Cold War, Marines responded to crises on the average of once every 15 weeks. Since 1990, we have been tasked once every five weeks, resulting in a *threefold increase in operational commitments!* Clearly, the enduring wisdom of the Nation's leadership in creating and maintaining such a ready, sea-based, air-ground team, has borne the test of time.

The words from the 82nd Congress remain as sound and relevant today, as they did in 1952. Marines have always had a global outlook which transcended any particular scenario or threat. Instead, we have steadfastly focused on our statutory role -- to serve as the Nation's premier crisis response force. Our role is to be prepared to be the first on the scene, first to fight, first to quell disturbances, and first to help, both

in the United States and abroad. Our experience has taught us that the only common denominator for the sort of missions expected of a force-in-readiness is an immutable commitment to be ready for world-wide commitment 365 days a year. Anything less is inconsistent with our ethos, our core capabilities, and the expectations of the American people. The United States Marine Corps is, and will remain, our Nation's premier force-in-readiness.

US Defense Strategy and Naval Forces

Two comprehensive and far reaching debates over future U.S. military requirements were successfully completed in 1997. These efforts, the Quadrennial Defense Review (QDR), and the National Defense Panel (NDP), were chartered to ensure that the U.S. remains capable of *shaping the future* security environment, instead of merely reacting after the fact. Significantly, both the QDR and NDP, validated the traditional role of the Marines, and pointed out that the Corps -- as one would expect from the Nation's force-in-readiness -- was already developing the capabilities needed to prevail in the next century.

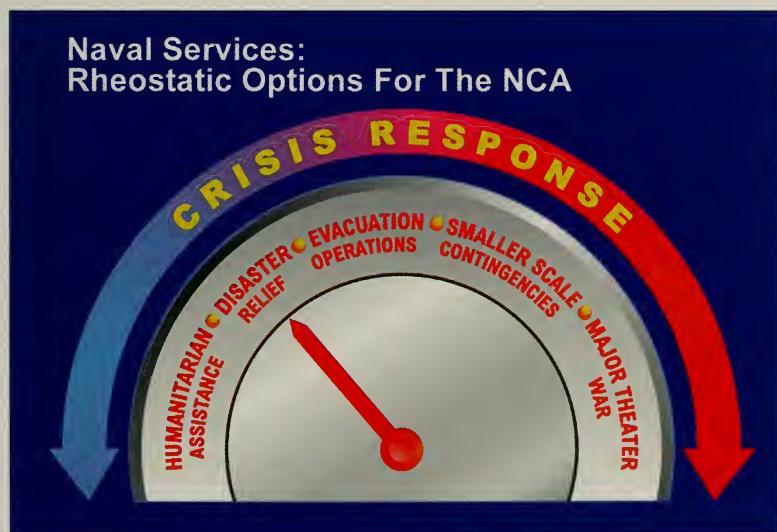
The QDR and NDP both characterize the next century as one of *crisis, conflict, and chaos* in the littorals to include: rapid economic growth, increased competition for limited resources, terrorism, technological diffusion, exponential growth in urban populations, nationalism, ethnic, and religious strife, and ready access to Weapons of Mass Destruction (WMD). The Marine Corps is in complete agreement with those assessments and has been actively preparing for just such an operating environment for some time. We see an age of uncertainty in the 21st Century, and have no pretensions about our ability to accurately predict the future. But, as our Nation's force-in-readiness, we must be prepared for whatever the future brings.

The QDR faced the difficult challenge of constructing a strategy that could simultaneously *shape* the current security environment, *respond* rapidly to emerging threats, and *prepare* the Department of Defense (DoD) for the long term. The QDR calls for "flexible and multi-mission capable" forces to respond to the full range of crises, not just the high end of the conflict spectrum. Furthermore, it stresses the need for forces which address multiple Small Scale Contingency operations, and are able to transition rapidly from one end of the spectrum of conflict to the other. Naval forces are ideally suited for this purpose, based on their flexible, multi-mission characteristics. Additionally, naval forces require no permission to enter an area of impending crisis. There are no issues of sovereignty involved with the deployment of naval forces and they can be sustained in the area for extended periods of time. Furthermore, mobile sea-based forces are far less vulnerable than land-based forces.

As the element of naval power that operates along and across the interface between land and sea, Marine forces complete that multi-dimensional aspect of presence needed by the regional CINCs for effective crisis resolution. From various types of military to military contact to “signaling resolve”, and from disaster relief to high-intensity combat operations, Marine forces provide the range of capabilities which allows a sea power to compensate effectively for the absence of permanent overseas bases.

The United States has been, and will continue to be, the world’s critical guarantor of stability through its forward deployment of credible combat power. At the same time, we cannot assume that we can continue to conduct business as we have in the past. The methods and strategies by which we established presence during the 20th Century may no longer suffice in the future. While our allies rely on us to provide military forces to maintain stability and security, they are coming under increasing pressure to reduce the numbers of American land-based personnel and their supporting infrastructure. We have seen this in the Middle East, in Panama, in the Philippines, in Japan, and throughout Europe.

Regional stability requires the United States to maintain a credible presence, but political dynamics may not allow us access to, or the use of, the traditional land-bases and facilities that we have become accustomed to. If U.S. military presence is critical to stability, then we must ensure we have the flexibility *and the means* to project decisive military force across the range of operational situations, with a force whose basing posture is acceptable to our allies. The forces best suited to provide this flexibility and acceptability are sea-based forces.



Why? Traditionally, sea-based forces have been looked on as politically and culturally acceptable because they are viewed as *transitory* in nature, and because they have a lighter political “footprint”. Furthermore, such forces are free to deploy rapidly to situations elsewhere in a region, and are not formally tied to a single mission. Designed to operate from both land and sea-bases, Marine forces, in concert with the Navy, provide a tailorabile, on-scene team, that can deter a threat to stability, conduct assistance operations, or participate in a Major Theater War (MTW). In many ways, Navy and Marine air, land, and sea forces can be used like a rheostat for the NCA and CINCs -- a combined force potency that can easily be adjusted up or down to meet any mission.

Preparing for an Uncertain Future

After any successful war, such as ***Desert Storm***, there is a tendency on the part of the winners to learn the lessons of the past too well. They rely on old solutions to solve future problems and become complacent in their search for new concepts and techniques that will lead to future victories. Unfortunately, history is full of examples of post-conflict military organizations that failed to adapt their war winning strategy, structure, equipment, and doctrine to accommodate the challenges of the future. The Prussians before Napoleon, the French before the German Blitzkrieg, and the Russians before Afghanistan, all fell into this trap. They had no future vision and stubbornly clung to visions of past glory, right up until their inevitable defeat. Today, there is a temptation to cling steadfastly to traditional, but outdated, Cold War models of “industrial age” warfare. The United States Marine Corps has no intention of doing this. To meet future challenges, we must turn away from the familiar and comforting glow of a ***Desert Storm*** analogy and face the brutish realities of what Rudyard Kipling called the “savage wars of peace.” These conflicts will involve U.S. forces operating in crowded urban slums, facing chaotic, multi-dimensional, and often highly lethal combat.

This is the landscape upon which the 21st Century battle will be fought. It will be an asymmetrical battlefield. Our enemies will not allow us to fight the “Son of Desert Storm,” but will try to draw us into a fight on their own terms, more resembling the “Stepchild of Chechnya.” In one moment in time, our Marines will be feeding and clothing displaced refugees and providing humanitarian assistance. In the next moment, they will be holding two warring tribes apart, conducting peacekeeping operations and, finally, they will be fighting a highly lethal mid-intensity battle, all on the same day, all within three city blocks. We call this the “three-block war.” In this environment, conventional doctrine and

organizations may mean very little. It is an environment born of change and adaptability. It will also be an age born of advanced technology and weapons that are readily available to friend and foe alike.

In the future, the United States is likely to face a number of very different threats to its security, interests, and way of life. Many of these will be associated with the littorals, those areas characterized by great cities, well-populated coasts, and the intersection of trade routes where land and sea meet. While representing a relatively small portion of the world's surface, littorals provide homes to over 80 percent of the world's capital cities, and nearly all of the market places for international trade. Because of this, littorals are also the place where most of the world's important conflicts are likely to occur.

In recognition of this changing security environment, the Navy and Marine Corps revised its strategic direction with the publication of "... From the Sea" in 1992, and "Forward ... From the Sea" in 1994. These two documents frame the Navy-Marine Corps vision. The Marine Corps will execute this vision using the operational concept, Operational Maneuver From the Sea (OMFTS)-- published in January 1996. The heart of OMFTS is the maneuver of naval expeditionary forces at the operational level of warfare to exploit enemy weakness and deliver a decisive blow. It combines high technology with maneuver warfare and is enabled by the advantages of sea-basing. These forward-looking responses to evolving world events are designed to ensure naval forces maintain superior capabilities in the projection of decisive power and influence ashore ...from the sea ... across the spectrum of peace, crisis, and war into the 21st century.

Joint Vision (JV) 2010 was issued in 1996 to provide the Chairman of the Joint Chiefs of Staff's (CJCS) strategic direction for the common evolution of the Armed Forces to achieve new levels of effectiveness through joint warfighting. The U.S. military's overall strength as a fighting force is ultimately a function of service competencies -- reflecting distinctive capabilities, cultures, and traditions. Additionally, these *core competencies* offer a diverse set of options to the NCA and the Combatant Commanders in Chief (CINCs). In this regard, the operational themes called for in JV 2010 are entirely compatible with OMFTS. The operational pillars explicit to JV 2010 (Dominant Maneuver, Precision Engagement, Focused Logistics, and Force Protection) are all imbedded within OMFTS. By using the sea as a maneuver space, both dominant maneuver and force protection are enhanced. The use of over-the-horizon (OTH) sea-bases to minimize the logistics build up ashore during power projection operations also enhances force protection, while relying upon

focused logistics to sustain the maneuver force from its secure sea-base. Additionally, OMFTS utilizes significantly improved range, accuracy, and lethality for precision engagement.

Core Competencies

Articulating what the Marine Corps does to support our National Security Strategy and how we operate is best accomplished by examining our core competencies. With over 222 years of expeditionary experience, including the last 46 as the Nation's legislated force-in-readiness, the following six core competencies define the essence of our unique institutional culture and role within the national military establishment.

❑ ***Expeditionary Readiness.*** This quality stems from an institutional mindset and organization that is ready to respond instantaneously to any worldwide crisis, 365 days a year. This expeditionary mindset implies a Spartan attitude: an expectation and a willingness to endure -- in fact, a certain pride in enduring -- hardship and austere conditions. As an example of this attitude, in most Marine Corps units embarkation boxes substitute for bookcases, locker boxes are packed, and our packs are filled and at the ready. In essence -- as an organization -- we are ready to go at a moment's notice.

To Marines, this orientation is characterized by three things. First, it means being ever-ready to transition from peace to war without reserve augmentation, and to win our Nation's first battles. Second, it means a relentless commitment to innovation -- continuously anticipating evolving strategic challenges and preparing to defeat the "opponent after next." Third, it demands a force that is adaptive with leadership trained to improvise and capable of flourishing under conditions of extreme uncertainty.

❑ ***Combined-Arms Operations.*** The Nation's premier crisis response force must be capable of acting on short notice and without immediate support from other warfighting forces. While we are fully capable of, and frequently practice, operating as part of a joint force, many times we arrive at the scene of a crisis before the rest of the joint force can arrive. It is for this reason that the Marine Corps requires an organic, combined-arms capability. MAGTFs have trained for more than a half century so that their ground combat, air combat, and combat service support capabilities are cohesively led by a single commander. Because MAGTFs operate as a joint force in microcosm as part of their everyday operations it allows them to seamlessly integrate into the combined-arms nature of joint force operations when required.

❑ **Expeditionary Operations.** The key to achieving success on foreign soil is the ability to sustain combat and non-combat operations without “host nation” assistance. This ability to rapidly project force requires a special mindset -- one that is continuously prepared for immediate deployment into an austere environment. Marine forces arrive at the scene of a crisis with all that is needed to get the job done. Any resources available from the “host nation” are considered a luxury. This mindset drives the design, development, and acquisition of everything necessary to accomplish a wide variety of missions -- from individual equipment to expeditionary airfields and hospitals.

❑ **Sea-based Operations.** Unlike any military force in the world, the naval character of the Navy-Marine Corps Team singularly gives our Nation an enduring means to shape and influence global events. Sea-based operations provide extraordinary strategic reach to shape events and provide units with a large measure of inherent force protection. A highly ready, combined-arms MAGTF, operating from mobile sea-bases provides the NCA with politically unencumbered access to global trouble spots.

❑ **Forcible Entry from the Sea.** Ultimately, a global superpower must possess the ability for unilateral action. A key requirement is the capability to project power ashore in the face of armed opposition. In the past, forcible entry from the sea was defined by amphibious assaults that focused on establishing lodgments on the beach and then building up combat power for subsequent operations. It is now defined as the uninterrupted movement of forces from ships located far over-the-horizon, directly to decisive objectives, whenever and wherever we desire.

❑ **Reserve Integration.** Although a force-in-readiness cannot pause to call up its Reserves during an emerging crisis, Marine Reserves have continuously met the challenge of quickly integrating into the MAGTF team. As a part of the Total Marine Force, our Reserves have also recently assisted and augmented our forward presence around the globe. Marine Reserves routinely practice carefully crafted reserve integration plans to augment or reinforce crisis response missions and add vital combat power, especially at the high end of the conflict spectrum. With common training, standard equipment, and identical combat readiness criteria, Marine Reserves represent a highly professional force multiplier for the NCA to call upon.

In summary, Navy and Marine forces provide self-contained and self-sustained air, land, and sea forces operating from a protected sea-base. They are structured to meet a range of contingencies including presence,

humanitarian operations, evacuation of non-combatants, peacekeeping, and warfighting. They are compact enough to respond rapidly and yet heavy enough to get the job done. Most important in this increasingly uncertain world, the combined Navy-Marine team provides the NCA with enormous flexibility in their pursuit of national security interests.

Building A Corps for the 21st Century

In order to create the agile, adaptable, combined-arms force the Nation will need in the 21st Century, the Marine Corps is focusing on three areas. We are enhancing the individual Marine; we are modernizing with advanced technologies; and, we are institutionalizing our commitment to innovative change.

Enhancing the Individual Marine

Our number one modernization and product improvement program will continue to be the *individual* Marine. The Marine Corps knows that it is people, not machines, that ultimately determine our success in peace and in war. Accordingly, we will equip our Marines, not man our equipment. The cornerstone upon which we will build our force-in-readiness is the world's finest military professional; the United States Marine -- a disciplined, motivated and dedicated warrior. On tomorrow's battlefield our junior enlisted Marines will have access to, and use, more information than a battalion commander does today. To prevail on the future chaotic battlefield our Marines must be imbued with the values that have served us well throughout our history. All Marines, enlisted and commissioned, junior and senior, will be educated to act intelligently and independently, trained to seek responsibility, and expected to act with boldness and individual initiative. Our Marines must be improvisers, innovators, and, above all, team players. Regardless of specialty, all Marines will be trained first as riflemen, able to defend themselves and their units. We will forge these highly capable individuals into flexible yet unbreakable teams, and into a single cohesive Marine Corps, embodying our unique esprit.

Transformation. We have preserved the tried and true method of making Marines -- high standards, tough recruit training, and instilling the ethos of selflessness in each recruit. Yet, at the same time, we need to ensure our methods accommodate the requirements of the 21st Century battlefield, a battle where the actions of a 19 year old Marine will not only have tactical and operational significance, but possibly strategic as well. To fight and win the "three-block war" will demand men and women who are not only warriors without peer, but are uncompromising in judgment and character. We, therefore, developed the process we call Transformation.

The first step in the transformation process is to recruit the finest young men and women the Nation has to offer. Once at the recruit depot, our Drill Instructors instill in each recruit the self-discipline, core values, and ethos of the Corps. Male and female recruits undergo the same training programs -- but separately. We believe that the cultural change from civilian to Marine is best accomplished by training our male and female recruits separately, integrating them once they get to their follow-on schools. The goal is to transform these individuals from many diverse backgrounds into Marines imbued with a common set of values and



standards. We know we cannot re-engineer the value system of an 18 year old, but we do believe we can teach them our Marine values, then hold them accountable for meeting those values and for maintaining our high standards. The culmination of recruit training is the "Crucible." The Crucible is 54 hours of mental, physical, and moral challenges exacerbated by food and sleep deprivation. It is designed to build team integrity and strengthen unit cohesion. It is a defining moment which takes these young recruits and moves them beyond self-discipline into selflessness.

Upon graduating from recruit training, Marines are assigned to teams based upon their military occupational specialty (MOS). Once grouped, Marines attend either the School of Infantry (SOI) or Marine Combat Training (MCT) and then their follow-on occupational school. They are then assigned together to a unit and remain with that unit for their entire first enlistment -- further strengthening the now well established bond.

For the rest of their time in the Corps, these values and bonds are reinforced through training at our service schools and non-resident courses of study.

The objective of the Transformation process is to develop Marines who are stronger, smarter, more capable, and have the maturity and flexibility of mind and body to meet the challenges of the future battlefield. An added benefit of this transformation process is that it serves to reinforce the traditional American work ethic and dedication to the team. Therefore, upon completion of military service, these Marines will return to society as more responsible and productive citizens.

Education. Safely navigating from the Marine Corps of today to the Marine Corps needed in the 21st Century demands creative and innovative leadership. To ensure we retain an adaptive and flexible force capable of winning when committed, we must educate our Marines so that they have the intellectual agility essential for combat decision making. Therefore, it is imperative that we extend our education initiatives to all Marines -- not just a select few. To support these objectives, Distance Learning Centers have been implemented, each employing the latest information technologies. These include the Navy's Program for Afloat College Education (PACE); the Marine Corps Satellite Education Network (MCSEN); and the Military Academic Skills Program. Further, we are exploring a variety of advanced technologies for developing and delivering learning products just in time, when and where they are most needed. In the near future, Marines can expect to use the Internet and intranets, Learning Resource Centers (LRC), Interactive Multimedia Instruction (IMI), Video Tele-Training (VTT), and Embedded Training (ET) to learn and master new skills.

Training. Marine Corps training has always focused on winning in combat. However, the complexity and speed of combat operations on the decentralized, lethal, urban battlefield of the 21st Century mandates that we improve the standard and efficiency of our training. The Marine Corps has aggressively instituted new and improved training programs during the last two years. We have added the Crucible to recruit training; we improved the syllabus at MCT and the SOI; the MAGTF Staff Training Program (MSTP) is giving our warfighting staffs the training they need to fight their MAGTFs more effectively; the Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) is developing the aviation tactics we will need to support the MAGTF in the 21st Century, and we have a new Marine Aviation Campaign Plan (MACP) that improves how we train in aviation. Additionally, the Marine Corps is applying new concepts and technologies in modeling to develop the simulators and simulations that will make our training as realistic as possible.

Modernization

The Marine Corps is aggressively modernizing our forces to enhance our ability to conduct OMFTS. Toward this end, the Marine Corps, with the Navy, is developing and procuring several key programs which will enhance our ability to fight on the 21st Century battlefield. These efforts include:

❑ **MV-22 Osprey.** OMFTS requires the projection of land forces deep into the enemy's interior from over-the-horizon. The Marine Corps' current medium-lift helicopter, the CH-46, lacks the range to accomplish this mission. The MV-22 allows Marine forces to penetrate the entire operational depth of our opponents, thus exploiting their vulnerabilities. Our opponents will know that wherever they try to maneuver, they will be in range of MV-22 transported ground forces.

❑ **Advanced Amphibious Assault Vehicle (AAAV).** The over-the-horizon (OTH) assault was developed by the Navy and Marine Corps to complicate enemy defenses, to exploit weaknesses, and to improve the survivability of Navy ships. The AAAV's unique capabilities include: (1) over three times the water speed of the current AAV7A1; (2) nearly twice the armor protection of the current AAV7A1 (already enhanced by applique' armor); (3) the ability to defeat future threat light armored vehicles; (4) land mobility equal to or greater than the M1A1 tank; (5) lift and carrying capacity for a reinforced rifle squad; and, (6) the only Combat vehicle system for infantry in the U.S. inventory that provides NBC protection for both the crew and embarked personnel.



The ability of the AAV to rapidly transition from sea to land operations gives the Marine Corps a tremendous increase in its ability to apply force throughout the depth of the battlespace. Together with the MV-22 and the existing Landing Craft Air Cushion (LCAC), the AAV completes the mobility triad necessary for the execution of OMFTS. Each component of the triad is critical because together they provide the Corps with offense in depth which will be difficult for opponents to counter.



Amphibious Shipping. Adequate, state-of-the-art, amphibious shipping is essential to the prosecution of OMFTS. The current modernization plan enables the formation of 12 Amphibious Ready Groups to meet forward presence, contingency, and warfighting requirements. This program will provide the most modern over-the-horizon launch and recovery platforms for the MV-22, the AAV, the LCAC, and the short-take-off and vertical-landing (STOVL) variant of the Joint Strike Fighter -- all of which are critical to execution of OMFTS. Sea-basing also provides protection to the land force for it reduces the vulnerabilities associated with large logistics "footprints" ashore.

Joint Strike Fighter (JSF). The JSF program will provide the Marine Corps the next generation aircraft, replacing the AV-8B and F/A-18C/D with a single STOVL platform. It will solve our TACAIR age and attrition problems and meet Marine aviation's goal to neckdown to a single type of fixed wing aircraft. But more importantly, it will provide the Marine

Corps with a superior performance, stealthy, state-of-the-art technology, multi-mission jet aircraft that can operate with full mission loads from amphibious class ships or austere expeditionary airfields. This blend of stealth, superior performance, and basing flexibility will enable the ASTOVL JSF to perform a broad range of OMFTS missions. They include: escorting the MV-22, striking critical deep targets, providing armed reconnaissance and close-air support, suppressing enemy air defenses, and conducting active air defense missions. With the ASTOVL JSF Marine aviators will be able to support the full range of OMFTS mission profiles, providing Marine ground forces with the precise and timely fire support they will need on the 21st Century battlefield.

To maintain the Marine Corps force-in-readiness responsibilities, Marine Aviation must sustain the capabilities of its legacy aircraft until they are replaced in accordance with our long standing neck-down strategy. The Marine Aviation Campaign Plan provides this blueprint for finding new ways to bring together technology, increased manning, and sustainable operational tempo to make Marine Aviation units more robust. It provides a bridge to the 21st Century when STOVL JSF, MV-22, 4BN/BW, and KC-130J will be the backbone of the Marine Aviation Combat Element (ACE).

Marine Enhancement Program (MEP). This program is geared toward developing more lethal infantry weapons and improved field equipment for the individual Marine. Enhanced survivability, reduced fatigue, and greater lethality are all MEP objectives, particularly in unpredictable weather and terrain conditions. Specific items of equipment under this program include an improved infantry combat boot, Gortex parkas and trousers, a Gortex bivvy sack, a vapor-permeable, lightweight, shelter system as a replacement for canvas tents, an integrated load-bearing vest and modular pack system with quick release and drink-on-the-move capability, and a new family of body armor. Other new individual equipment includes improved navigational aids and night vision devices.

Institutionalizing Operational Reform

Preparing the Marine Corps for the 21st Century requires far more than recruiting and training the best America has to offer and modernizing our equipment -- it requires an institutional commitment to change. The accelerating rate of change in our operating environment requires us to continually anticipate this change, and stay in front of it. Just laminating technology on current doctrine and equipment will not suffice. We have begun this journey by institutionalizing the process by which new and promising concepts are invented, tested, and transformed into innovative capabilities to meet the demands of future conflict.

□ **Marine Corps Warfighting Laboratory.** In October 1995, we stood up the Marine Corps Warfighting Laboratory (MCWL) at Quantico, Virginia. This laboratory serves as the conduit for operational reform in our Corps. It is investigating new and potential technologies and evaluating their impact on our doctrine and on how we organize, train, and equip to fight in the future. The MCWL is the vehicle that will help us build a Corps for the 21st Century.

□ **Sea Dragon.** “Sea Dragon” is the Marine Corps name for the MCWL’s open process of exploitation and development of new concepts, tactics, techniques, and procedures. Sea Dragon is not one particular innovation or idea, but rather a commitment to innovation. It derives from an Oriental metaphor for how to aggressively adapt to change. It energizes and encourages challenges to the “business as usual” approach. It is a process of concept development and experimentation that seeks to build on existing strengths to create new and competitive advantages in future combat. It encompasses inquiries into multiple technology and warfighting areas, including fires, biological/chemical weapons, command and control, non-lethal weapons and technology, expeditionary logistics, and advanced training and education techniques. These core areas enable the Marine Corps to interface with and leverage similar organizations within DoD, universities, and private industry.

In February 1997, The MCWL conducted the first of three Advanced Warfighting Experiments (AWEs) at 29 Palms, California. This initial effort was called *Hunter Warrior*, and was designed to see if a light, combined-arms force, such as a Marine Expeditionary Unit (MEU), could seize the initiative from a superior force when supported by organic air and long-range precision weapons. We had some spectacular successes and we also had some failures. The concepts, organizations, tactics, and equipment identified during the *Hunter Warrior* AWE have been fed into our Combat Development System for institutional testing, development, and possible procurement and implementation.

Our next AWE -- *Urban Warrior* -- is in progress now. Throughout modern history, we have consciously avoided fighting in urban areas. But by 2010, over 70 percent of the world’s population will live in urban areas, and most of these, are within 300 miles of a coast line along the world’s littorals. Conventional forces are not currently designed, equipped, or adequately trained to fight in urban environments. That is exactly why our future opponents will take the fight to the cities. They will attack us asymmetrically, pitting their strengths against our weaknesses. They saw what our conventional forces and technology did to the Iraqis in *Desert Storm*. They also saw our Achilles heel in Somalia. Therefore it is highly likely that our enemies will challenge us in the cities,

and the United States Marine Corps, the Nation's force-in-readiness, will be ready. *Urban Warrior* will help us test and develop the doctrine, tactics, techniques, procedures and equipment to win that battle. We have already begun conducting Limited Objective Experiments (LOEs) at Quantico, Virginia and Camp Lejeune, North Carolina. *Urban Warrior* is scheduled to complete its AWE during FY99.

The final AWE -- *Capable Warrior* -- is the culminating phase of our five-year Experimentation Plan. It will focus on fleet and force level operations across the entire spectrum of war, including Military Operations Other Than War (MOOTW). Applicable concepts, tactics and technologies from *Hunter Warrior* and *Urban Warrior* will be incorporated. *Capable Warrior* is scheduled to begin in FY99.

Chemical/Biological Incident Response Force (CBIRF). In recognition of the potential threat of chemical or biological terrorist incidents, the Marine Corps has created an innovative organization called CBIRF. The CBIRF is structured and equipped so that it can be electronically connected to a diverse group of knowledgeable specialists including a Nobel Laureate, located at universities, hospitals, and



government organizations around the U.S. In the event of a chemical or biological incident, the CBIRF implements its network of government and civilian experts -- a virtual staff -- to provide valuable on-scene consequence management support. The CBIRF was first deployed in support of the 1996 Centennial Olympic Games in Atlanta and supported the 1997 Presidential Inauguration. During recent Advanced Concept Technology Demonstrations (ACTDs) sponsored by OSD, CBIRF was able to recommend improvements in state-of-the-art biological agent detection equipment. Further, working with the Army's Technical Escort Unit (TEU) at Dugway Proving Grounds, the CBIRF responded to

the simulated use of agents in an urban training environment. The integration of CBIRF and TEU capabilities in an operational environment

facilitates the effective employment of DoD forces to contain the effects of an attack with Weapons of Mass Destruction.

❑ **Non-Lethal Weapons.** Non-lethal weapons provide the commander with a more flexible response capability to handle politically sensitive situations that might require use of force that is less than lethal. The four services and the U.S. Special Operations Command have joined together in a joint venture focused on the near term fielding of low cost, non-developmental capabilities, and assessing new technologies and their use in future warfare.

The Commandant of the Marine Corps, as the DoD's executive agent, has taken several aggressive steps to organize and coordinate efforts in this critical area. The Joint Non-Lethal Weapons Directorate serves as the focal point for all DoD non-lethal weapons activity. It also serves as a clearinghouse for unclassified information on non-lethal technologies and an information exchange with other U.S. agencies and foreign governments. Efforts to date have provided U.S. forces with non-lethal weapons, to include: 40mm sponge, stingball, and foam baton rounds; tactical water cannons; and hand grenade dye markers.

❑ **Standing Joint Task Force Headquarters.** This initiative explores the development of Joint Task Force (JTF) Command and Control capabilities in Marine Expeditionary Units. The Second Marine Expeditionary Force (II MEF) is leading the effort to establish a premier, Standing JTF Headquarters (SJTFHQ). The Corps possesses extensive operational expertise in integrating multi-service command and control doctrines into an effective joint headquarters. The SJTFHQ can provide an immediately available headquarters for the National Command Authorities and CINCs to rapidly plan responses to emerging crises. The Marine Corps has invited CINC USACOM to take charge of the SJTFHQ in his role as the "joint force provider."

❑ **Modeling and Simulation.** The Marine Corps Modeling and Simulation (M&S) Master Plan and the Marine Corps Aviation M&S Master Plan ensure that the Corps stays on the leading edge of this technology to enhance operational and training effectiveness. It is critical to developing improved battlefield decision making skills at the unit and individual levels. Marine Corps investment in these areas not only preserves and enhances readiness but enables significant reductions in training costs. M&S also supports our Total Force Training Strategy by providing Marine Reserve forces effective training alternatives at geographical locations that are distant from major bases and ranges.

We will increase the use of simulation in Marine Corps aviation to augment flight training to save unnecessary wear and tear on our aircraft and decrease the risk to aircrews in certain operational and training scenarios. This will enable the Corps to reach a higher level of training readiness than otherwise achievable.

Trader's War Game Series. In 1995 the Marine Corps initiated an effort to study the decision making processes required on the 21st Century battlefield. This featured a series of wargames and information warfare workshops to examine the decision making and pattern analysis approaches and techniques of non-military organizations. The initial phase of this program was conducted at the New York Mercantile Exchange (NYMEX). We have continued this program completing our last exercise on the NYMEX in December of 1997. The series has been a tremendous success, and the Marine Corps is currently planning to extend it to other non-military organizations which confront the rapid decision making dilemma, including: large city police and fire departments, search and rescue organizations, medical trauma units, and the Federal Aviation Administration Air Traffic Control process.

Comprehensive Command and Control. In the next century, our Marines are likely to conduct humanitarian operations, peacekeeping, and high intensity combat all in the same day and in the same operating area. To successfully execute these missions, Marines will need to work side by side with other government and non-government agencies. What is needed is a new operational concept for effective orchestration and integration of the diverse capabilities of the different entities into a coherent campaign plan. For without such a concept, there is a lack of coordination, thereby creating friction, reducing our tempo, and allowing our adversaries opportunities to exploit our political, military, and domestic seams. This will not suffice in the 21st Century. The Corps' future operating environment will require our forward deployed, sea-based forces to quickly and efficiently integrate intelligence, operations, and support assets of the entire spectrum of national power. This spectrum includes military, academic, industry, government, and non-government agencies and assets. In response to this requirement, the Marine Corps has recently initiated development of this concept for *Comprehensive Command and Control*. This concept will develop means to identify needed operational capabilities and enables forward deployed forces to "reach back" to the various agencies, organizations, industries, and individuals possessing these capabilities -- wherever they are located -- and bring them to bear during any phase of the operation from pre-planning and wargaming to mission planning or the execution phase of an operation.

The Corps in the 21st Century

Our role as the Nation's force-in-readiness remains remarkably enduring and useful despite the dramatic changes that have taken place in the intervening half century. Our emerging joint doctrine properly reflects the criticality of integrating all service capabilities within a unified warfighting effort. Nevertheless, the strategic value of a combined-arms, expeditionary and amphibious force standing most ready when the Nation is least ready remains *undiminished*, if not increased.

The Marine Corps will be recognized globally as the premier crisis response force; it will be prepared to fight, anywhere, anytime, under any circumstance, and win decisively. The Corps will continue to be the world's finest military professionals, thinkers, and leaders. Individual Marines will continue to be trained and educated to act intelligently, to independently seek responsibility, and to be accountable. The Corps will be an adaptable organization, able to anticipate and adjust quickly to any challenge. We will continuously exploit the latest technologies, concepts, and methods available to enhance the operational effectiveness of our forces.

Forward-operating in fully capable combined-arms teams, Marine Corps forces will be on the scene, ever ready to protect the Nation's interests. We will remain fundamentally a naval expeditionary force, as fully capable on the seas as on land and in the air. Marine forces with the Navy, will be able to rapidly project forces across any shore, against any foe, while sustaining ourselves from sea or expeditionary land bases.

The Marine Corps will continue to be an economical force -- providing the Nation a high return on investment. The Corps will continue to provide a disproportionately larger share of the DoD's operational forces than the resources it consumes. As the Nation's leaders seek new ways to maximize the use of defense dollars, the value and leverage provided by the Marine Corps in terms of "bang for the buck" and "tooth-to-tail ratio" will be increasingly recognized.

Throughout its history, the Marine Corps has been at the forefront of military innovation with contributions such as close air support, amphibious operations, vertical assault, Vertical or Short Take Off and Landing (VSTOL) and tilt-rotor aircraft, maritime prepositioning, less-than lethal technologies, and unmanned aerial vehicles (UAVs). Innovation and improvisation will remain the foundation upon which we build the Corps of the future. We will transform that Corps to meet future challenges with investments, not only in technology and systems, but in our people.

The 21st Century will be a time of immense change. The only constant is that the Marine Corps will remain this country's premier crisis response force. With the Navy, Marine forces are the Nation's only fully capable force-in-readiness, totally prepared to project power and influence events anywhere to protect American interests. Making Marines and winning battles will remain the Marine Corps' most important function to the Nation. Our successes have earned the respect and confidence of the American people. We have not failed them in the past -- and the Marine Corps will not fail them in the future.



Chapter

Concepts and Issues

The Quadrennial Defense Review and National Defense Panel examined and redefined future National Security needs, and the force levels required to meet those needs. They validated the need for Naval expeditionary forces as vital elements of the shaping and crisis response functions of the National Defense Strategy.

Transforming today's highly capable Marine expeditionary forces to meet the challenges and uncertainties of the 21st Century requires a blending of new operational concepts, doctrine, and technology. The Marine Corps believes that any "victory of science" must bring together the human, conceptual, and technological dimensions of conflict with proper application of both science and the art of war to achieve success on the future battlefield.



2 Chapter

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Transforming today's highly capable Marine expeditionary forces to meet the challenges and uncertainties of the 21st Century by blending new concepts, technologies, and training.

Developing and applying the dimensions of conflict with proper application of both science and the art of war to achieve success on the future field.



In this environment, achieving support for those concepts and programs which underpin the Marine Corps future operational success requires an informed consensus among the public, industry, and the national leadership. Creating this consensus requires open debate, which is an essential part of the National Security process, and an important means of ensuring an effective and affordable defense posture. This chapter presents those key concepts and issues which are important to the debate and will enable the Corps to move into the next century.



Operational Maneuver From the Sea

Discussion

Operational Maneuver from the Sea (OMFTS) is the Marine Corps capstone operational warfighting concept for the 21st Century. It is applicable across the range of military operations, from Major Theater War (MTW) to smaller scale contingencies. It is more than a road map to the future, it is a "catalyst" to stimulate a process of proposal, debate, and experimentation building on the foundation laid by "...From the Sea" and "Forward...From the Sea." It is a naval concept developed by the Marine Corps and executed in concert with the Navy. It places unprecedented emphasis on the littorals and demands greater cohesiveness between naval warfare and maneuver warfare.

OMFTS capitalizes on naval forces' ability to use the sea as a maneuver space. The intent in employing this concept is to deliver a decisive blow against an enemy's center of gravity through Ship-To-Objective Maneuver (STOM). The STOM concept tactically implements OMFTS by applying maneuver warfare tenets to amphibious operations. A key element in OMFTS is the sea-basing of command and control, logistics, and the preponderance of fire support functions. Sea-basing greatly reduces the force's "footprint" ashore and therefore its vulnerability. It allows greater operational initiative and flexibility as forces will be liberated from establishing large shore-based logistics depots and providing rear area security to protect them. Furthermore, the concept of sea-basing will provide the JTF commander with the capability to maneuver combat forces seamlessly from the sea to the decisive objective area without the traditional impediment of securing the beach. Sea-basing thus allows putting the "teeth" ashore while leaving the logistics "tail" afloat.

Several key platforms, each at the cutting edge of technology, are required to bring the OMFTS concept to fruition. They are the MV-22 Osprey, the Advanced Amphibious Assault Vehicle (AAAV), and the already operational Landing Craft Air Cushion (LCAC) vehicle. Once introduced to service, the Short Take-off and Vertical Landing (STOVL) variant of the Joint Strike Fighter will provide fire-support critical to the success of OMFTS. Continued development of these visionary enhancements opens new windows to power projection operations. They enhance decisive responses by forward deployed forces to events requiring operations ranging from forward presence to conflict resolution.

Marine Corps Position

OMFTS is the Marine Corps central warfighting concept for the next century. It is a blending of maneuver and naval warfare enabling swift strikes against critical enemy vulnerabilities, while avoiding his strength to achieve mission success. OMFTS requires overcoming challenges in battlefield mobility, intelligence, command and control, and sustainment. The Marine Corps will meet these challenges by coupling technology and innovative approaches in doctrine, organization, tactics, and training.

Other Emerging Operational Concepts

Discussion

Operational concepts are the “engine of change” for transforming the Corps. These concepts not only “chart” the future but are the basis for selecting an initial course of change. Through wargaming and experimentation we identify and exploit the more promising concepts and supporting technologies for subsequent assessment. The Marine Corps Warfighting Laboratory (MCWL) serves as the focal point for operational reform as it is charged with evaluating new and promising concepts and technologies, and assessing their total impact on the Corps warfighting capability. Finally, the Marine Corps Combat Development System translates validated operational concepts into requirements that identify programs to be resourced to achieve a capability. The following summarizes the scope of approved emerging concepts supportive of the OMFTS framework.

❑ Maritime Prepositioning Force 2010 and Beyond (MPF 2010). This concept will enable next generation Maritime Prepositioning Forces (MPF) to provide enhanced contributions to forward presence and power projection. These enhancements are best illustrated by the pillars of MPF 2010.

Force closure: Will provide for the at-sea arrival, by surface or air means, of Marines supported by maritime propositioning ships, eliminating the requirement for access to secure ports and airfields. Marines will ready their equipment on board and arrive in the objective area prepared for operations.

Amphibious task force integration: Will allow the MPF to participate in OMFTS by reinforcing the assault echelon of an amphibious task force. Future MPF ships will provide facilities for the tactical employment of surface and air assault craft, as well as communications systems which will be fully compatible with those of the amphibious task force.

Indefinite sustainment: Will provide the sea-based conduit for continuous logistic support. This support will flow from U.S. bases via the sea-based MPF 2010 for Marine expeditionary operations. As a part of a larger sea-based logistics system, to include hospital ships, offshore fuel distribution and other capabilities, this initiative will help free the force from dependence on logistics bases in theater.

Reconstitution and redeployment: Will prepare the force in-theater for further operations without extensive materiel maintenance or replenishment at a strategic sustainment base.

❑ **Military Operations on Urbanized Terrain (MOUT).** Given current projections of dramatic increases in urbanization, especially in the volatile developing world, Marines are preparing for extensive operations in cities. Historically, military operations on urbanized terrain have been attrition-style operations, relying upon overwhelming firepower to achieve the cumulative destruction of the enemy's materiel assets. Such attrition style combat exacts a toll in casualties and infrastructure destruction which is inconsistent with the Marine Corps warfighting philosophy. In future urban warfare, the Marine Corps will adapt maneuver warfare to the peculiarities of the urban environment in order to accomplish our mission at significantly lower human and material costs. This will require both new technology, new tactics, techniques, and procedures to identify the enemy's positions of strength and his critical vulnerabilities. In combat operations, Marines will maneuver deftly through urban terrain, striking blows against those units, positions, and facilities upon which the enemy depends. In smaller scale contingencies not normally involving combat, like humanitarian assistance evolutions, Marines will operate with the same efficiency and confidence.



In order to achieve these objectives, the Marine Corps is developing and experimenting with new equipment, tactics, and training procedures to overcome current limitations in reconnaissance, command and control, mobility and countermobility, measured firepower, survivability, adaptability, awareness, sustainability, and force protection. These challenges are being addressed in the *Urban Warrior Advanced Warfighting Experiment (AWE)* being conducted by the Marine Corps Warfighting Lab early in 1999.

❑ **Joint Concept for Non-Lethal Weapons (NLW).** This joint concept supports the Commandant as the designated DoD Executive Agent for NLW. This concept establishes a set of “guiding principles” to ensure common direction of the services and agencies (both Defense and non-Defense) and efficient use of resources in the development of non-lethal capabilities. The concept delineates fundamental NLW competencies that are needed to enable U.S. forces to achieve favorable operational outcomes.

❑ **Force Protection.** Will provide unparalleled force protection by conducting operations from a secure sea-base. Exploiting the sea as maneuver space, the dispersed, mobile MPF complicates the enemy’s targeting process and takes advantage of extended stand-off range. The sea also serves as a barrier to terrorists or enemy special operations forces. MPF 2010 reduces the landing force’s “footprint” ashore, this limiting its exposure to threats from hostile forces.

❑ **Other Operational Concepts.** In addition to the above, the Marine Corps is actively evaluating the following agenda of concepts for transforming the Corps to new operational capabilities.

❑ **Comprehensive Command and Control Concept.** (Detailed discussion on next page)

- *Sustained Operations Ashore*
- *Other Expeditionary Operations*
- *Information Operations*
- *Military Operations in a Riverine Environment (MORE)*
- *Advanced Expeditionary Fires*
- *Anti-armor Operations*
- *Naval Mine Countermeasures in Future Littoral Power*
- *Projection*
- *Sea-based Fires and Logistics*

Marine Corps Position

Creating new operational concepts to conduct future battlefield operations and developing innovative force designs that provide new, versatile organizational and employment arrangements are essential to Marine Corps success in the 21st Century. In order to realize these objectives, we must leverage new advanced technologies via emerging operational concepts and redefine how Marine forces will conduct successful operations across the conflict spectrum.

Comprehensive Command and Control

Concept

Discussion

In the next century, we are likely to see Marines conducting humanitarian operations, peacekeeping, and high-intensity combat -- all on the same day and in the same operating area. Execution of these diverse missions will require Marines to routinely work side-by-side with government, non-government, and international agencies. Currently, we lack an operational concept for comprehensive command and control of the MAGTF that weaves the diverse capabilities of these different entities into a coherent campaign plan. The potential grave consequences of this would be a lack of coordination creating friction, thus impairing our momentum, and allowing our adversaries opportunities to exploit our political, military, or domestic seams. We must explore new command and control concepts that unify the efforts of the intellectual, experiential, and operational capabilities of all elements of our national power. We need to take advantage of the resident intellects, assets, and capabilities of academia, industry, and other non-governmental agencies. Combined with the more traditional elements of national power -- military, economic, and cultural, we must consider expertise, knowledge, and information as national resources and strengths. One possible solution is to leverage the resources resident in the best companies and organizations America has to offer, and through a "reach back" capability, incorporate their talents during all phases of the mission.

This is not new. We are doing it right now with the Chemical Biological Incident Response Force. The Marine Corps has tapped into the expertise of Nobel Laureate, Dr. Josh Lederberg, and others to assist in the event of a Chem/Bio attack. As the head of our Chem/Bio "reach back" staff, Dr. Lederberg and his team join us on the scene of response via telecommunications and provide valuable diagnostic and treatment information. It is not difficult to visualize the expansion of the concept to bring the expertise of chemical companies, computer and software firms, banks, and environmental groups onto the 21st Century battlefield.

Marine Corps Position

The Concept for Comprehensive Command and Control of the MAGTF serves to close and cement the gaps between joint service and interagency connectivity. It will also allow us to bring all of the elements of national power to bear on the complex challenges that we will face in the next century. The Marine Corps Combat Development Center in Quantico, Virginia is currently working to achieve such a capability.

Revolution in Military Affairs

Discussion

Our success in the Gulf War and the explosive growth of information technologies has given rise to speculation that the nature of war is undergoing a profound transformation. Such an assessment holds that we are on the cusp of achieving a Revolution in Military Affairs (RMA). What many think of as the RMA is really an array of potential avenues -- possibly several different RMAs. We are not sure how information systems, biotechnology, space systems, unmanned systems, directed energy and biological warfare can be exploited for military applications. Without a true understanding of how to leverage these technologies, it remains unclear how the RMA will influence the character and nature of war in the next century. Whatever technologies emerge, the degree to which future security challenges can be addressed by RMA technologies remains uncertain.

The lessons of history are relevant to present national security planning. Success in developing advantageous capabilities does not always go to the nation with the best technology. Instead, success has followed those who have been able to transition from strategic analysis to empirical experimentation with possible solutions. Our Nation is in a period much like the 1920's when there were numerous emerging technologies that could dramatically change warfare. To advance and defend U.S. national security interests in the 21st Century, we should heed these lessons and prepare accordingly.

Our focus on the potential resident within an emerging RMA (or RMAs) should not distract us from an open-eyed assessment of conflict in the 21st Century. We need to prepare ourselves for the complex, dynamic and asymmetric threats of the "day after tomorrow," and not simply field a force that can fight **Desert Storm** more efficiently than before. We should be prepared to strike swiftly and decisively while radically reducing current vulnerabilities, especially in power projection operations.

Ultimately, our national security strategy and our vital interests are not ensured by technology alone, but by the capabilities we need to face an uncertain threat. We need to develop capabilities to master a broad range of crises and conflicts, including chaos in the littorals. The forces we design this year for "the day after tomorrow" must be capable in all operating environments, from deserts to densely populated urban centers. Our forces must be able to handle those things that technology alone cannot solve, and the Marine Corps has already started preparing for the future, just as the QDR and NDP recently recognized.



Marine Corps Position

The Marine Corps subscribes to the view that advanced technology alone does not constitute a RMA. Only when technology is combined with dramatic changes in military doctrine and organizational concepts that alter the conduct of operations, do we achieve revolutionary leaps in capability. The Marine Corps believes that the solution lies in a "system of systems" approach that brings together the human, conceptual, and technological dimensions of conflict. By proper application of both the "science" and the "art" of war, we will achieve success on the battlefield of the future.

Chemical/Biological Incident Response Force

Discussion

The 1995 Sarin gas attack on the Tokyo subway, Iraq's possession of biological weapons, and the breakdown of controls on WMD in the former Soviet Union all indicate that the threat of biological or chemical terrorism has significantly increased. Because the use of chemical or biological agents by terrorists is potentially catastrophic, the DoD has focused on preventing such an incident. But in the event that we cannot prevent such an attack, we must be able to respond to and manage its consequences. However, limited national capabilities exist to respond to such an event and to adequately manage the consequences.



The Commandant of the Marine Corps has recognized this requirement and activated the Marine Corps Chemical/Biological Incident Response Force (CBIRF) on April 4, 1996. The CBIRF is manned, trained, and equipped to respond to chemical or biological terrorist incidents.

As a national asset, the CBIRF was used at the 1996 Centennial Olympic Games in Atlanta, the 1997 Presidential Inauguration, and recently supported the Summit of Eight in Denver, Colorado.

The concept for CBIRF employment entails an initial, rapid response to chemical or biological incidents. When such an incident occurs, the CBIRF will deploy to the affected site. Once there, the CBIRF will provide a number of significant initial consequence management capabilities: assistance in coordinating initial relief efforts; security and isolation at the affected site (when authorized); detection, identification, and limited decontamination of personnel and equipment; expert medical advice and assistance; and service support assistance. Throughout its response, the CBIRF will be advised by civilian and government consultants in areas related to chemical or biological incidents.

When not training, exercising, or responding to an incident, CBIRF personnel will provide training to other organizations. CBIRF will continue to develop countermeasures, force protection training, and equipment support packages for deploying MEU(SOC)s. The CBIRF will assist in the development of new doctrine, equipment, techniques, and procedures for responding to a chemical or biological attack or incident. Additionally, the CBIRF will assist federal, state, and local response forces in developing their own training programs on how to manage the consequences of a chemical or biological incident. CBIRF offers a model for developing similar capabilities elsewhere within DoD.

Marine Corps Position

DoD has a limited ability to respond effectively to a chemical or biological incident. The Marine Corps contributes to the national response capability by manning and equipping a consequence management force package specifically designed to respond to a terrorist-initiated chemical or biological incident. The CBIRF will continue to forge ahead developing the concepts, doctrine, organization, tactics, techniques, and procedures to remain the Nation's premier incident response force. This includes seeking out new detection and resolution technologies. Additionally, the CBIRF is focusing on increasing its capabilities in two areas. First, on developing countermeasure and force-protection training and equipment support packages for deploying MEU(SOC)s. Second, on assisting federal, state, and local response forces in developing their own training programs on how to manage the consequences of a chemical or biological incident.

Standing Joint Task Force Headquarters

Discussion

A joint warfighting capability requires the integration of unique skills and abilities of each service. This integration must take place at the Joint Task Force Headquarters (JTF HQ). With few exceptions, JTF HQs are ad hoc organizations established for a specific mission to manage and control assigned forces. Our past joint operation experiences demonstrate that compressed operational timelines and limited resources create potential disadvantages. The provisional nature of JTF HQs may adversely impact operational capability. The Marine Corps desires to reduce the friction associated with the initial JTF standup, enhance progress in the conduct of joint operations, and maximize the valuable training experience gained by applying lessons learned.

The Marine Corps has experienced great success in providing core capabilities for a JTF HQ for operations in Somalia and Guantanamo Bay, Cuba. In both cases, the headquarters was manned and equipped using Marine Expeditionary Force (MEF) assets augmented by the joint community and other Service components. Though operationally successful, these JTF HQs were ad hoc in nature, and the tasking was in addition to other MEF mission requirements.

Recognizing the advantages of continuity to effectively integrate service capabilities, the Commandant of the Marine Corps directed the establishment of a standing JTF HQ (SJTFHQ). This SJTFHQ takes advantage of the team mentality and expeditionary character of the Marine Corps for rapid deployment. It will be organized, trained, and equipped to respond to crises ranging from forward presence to conflict resolution.

In establishing the SJTFHQ capability, the Marine Corps is working closely with the combatant commanders to coordinate training and to ensure the needs of those commanders are met. This effort will contribute to joint capabilities and enhance the Marine Corps overall warfighting capabilities.

Marine Corps Position

The Marine Corps will provide a fully capable, expeditionary, SJTFHQ organized and equipped to move at a moment's notice to effectively meet a variety of contingencies. The objective is to provide a standing headquarters for the NCA and the Unified CINCs to deploy in response to emerging crises anywhere in the world's littorals.

Non-Lethal Weapons

Discussion

The DOD has acquired, and is in the process of fielding, a new class of systems called non-lethal weapons (NLWs). NLWs are explicitly designed and primarily employed to achieve military objectives while minimizing human fatalities and/or damage to property and the environment. They typically employ new technologies to temporarily incapacitate personnel or material without causing permanent injuries or death, and without gross physical destruction.

NLWs reinforce deterrence and expand the range of options available to commanders. They enhance our capability to discourage, delay, or prevent hostile action; to limit escalation; to isolate the battlefield; and allow military action in situations where use of lethal force may not be the preferred option. NLWs were employed during the withdrawal of United Nations forces from Somalia, during the intervention in Haiti, and they are currently deployed in the former Yugoslavia. The current systems include non-penetrating projectiles (rubber bullets, bean-bag rounds, and wooden baton rounds), flash-bang grenades, pepper spray, aqueous foam barriers, caltrops, and sticky foam.

In 1996, the Under Secretary of Defense (Acquisition and Technology) (USD (A&T)) appointed the Commandant of the Marine Corps as DOD's Executive Agent (EA) for NLWs. Leadership in this area transitioned from Office of the Secretary of Defense (OSD) to the joint and interagency Integrated Product Team (IPT) chaired by the Marine Corps. The EA/IPT continues to review and harmonize requirements, service funding, and program execution. The group has negotiated a Memorandum of Agreement among all services and the U.S. Special Operations Command for effective management and coordination. The NLW Steering Committee supports the USD(A&T) in his oversight role of the EA/IPT by reviewing and assessing IPT proposals and providing recommendations.

Marine Corps Position

The Marine Corps believes that NLWs provide commanders increased options for resolving complex problems encountered across the range of military operations and that they expand policy choices by providing a credible capability to use discriminate, measured force to influence pre-conflict, conflict, and post-conflict situations. NLWs potentially “buy time” in crises while other instruments (diplomatic, military, economic, law enforcement, etc.) are engaged.

Business Practice Reform

Discussion

The Marine Corps is committed to applying those business practices that American industry has successfully used to become more lean, flexible, and competitive. The resulting savings will help fund Marine Corps modernization, including a new generation of weapons systems needed to ensure future victories. Initiatives are being developed in re-engineering, acquisition, competition, and facilities demolition.

The Marine Corps Continuous Process Improvement Program (MCCPIP), introduced in 1992, continues to assess key management processes and functions to achieve improvements and efficiencies. Successful efforts at Headquarters, Marine Corps have resulted in the consolidation of Programming and Resource Management functions, formalization of a Force Structure Management Process, and a realignment of our Human Resource Development process. MCCPIP has used analytical tools for the development of the Marine Corps concepts and capabilities which provides rigor and a concrete foundation upon which to build future requirements. At the Marine Corps Combat Development Command, the Concept Based Requirements process has been re-engineered to align requirements to resources and connect planning and programming that allows for a more effective and efficient use of Marine Corps resources. The resultant effort has codified the Service headquarters role of “man, train, and equip” into a well defined Combat Development System.

Regarding acquisition, the Marine Corps, in conjunction with DoD, has embraced total life cycle ownership cost management concepts. This effort is designed to reduce weapon systems costs to sustain modernization. Initiatives are being pursued to integrate development and production of systems with the management of operations and support. This would enable trade-offs between investments in development to reduce support costs. Other reform initiatives include: multi-year procurements; contractor incentives; reduced logistics response times; new cost tools to balance cost with performance (cost as an independent variable (CAIV)); and, an improved financial system to capture these costs.

The Marine Corps is actively involved with the DoD effort to increase/leverage competition within the government and the private sector to improve services and save money. The Marine Corps is currently conducting studies to identify internal commercial functions that can be competed and outsourced. These include a complete review of our base, station, and depot maintenance functions, as well as public vice private

housing initiatives. The Corps expects to achieve significant savings from these efforts beginning in FY00.

Finally, we are improving our facilities management by eliminating inadequate and excess buildings and structures. We plan to demolish more than three million square feet by FY00 which will result in significant savings in operations and maintenance costs, improve safety, prevent space creep, and improve appearances.



Marine Corps Position

The Marine Corps will continue to aggressively identify, implement and use innovative tools and techniques to examine our business practices. Our business improvement initiatives will build upon existing efforts and expand across the entire enterprise. Through ongoing cooperative networking and business improvement efforts we will be able to accomplish our mission more efficiently and economically.

Marine Corps Warfighting Laboratory

Discussion

The Marine Corps Warfighting Laboratory (MCWL) was established in 1995 at Quantico, Virginia. As a military applications laboratory, the MCWL serves as the cradle and testbed for the development of new operational concepts, tactics, techniques, and procedures for fighting future wars. The MCWL is vehicle that will help us build the Marine Corps for the 21st Century.

“Sea Dragon” is the Marine Corps name for the MCWL’s open process of exploitation and development of new concepts, tactics, techniques, and procedures. It derives from an Oriental metaphor for how to aggressively adapt to change. “Sea Dragon” is a process of concept development and experimentation that seeks to build on the existing strengths of the Navy-Marine Corps Team -- merging Naval and Marine Forces within a joint warfighting framework. The Five Year Experimentation Plan (FYEP) is divided into three Advanced Warfighting Experiments (the recently completed first phase -- *Hunter Warrior*; the ongoing second phase -- *Urban Warrior*; and, the third phase -- *Capable Warrior*).

Between September 96 and February 97, the *Hunter Warrior* experiment was completed. *Hunter Warrior*’s objective was to experiment with capabilities that could significantly improve the warfighting potential of a MEU(SOC) sized combined-arms team. Dispersed operations were the centerpiece of this effort.

The *Hunter Warrior* experiment provided three clear lessons. First, we can, in certain circumstances, dominate large coastal areas with modest forces. Second, we can employ a small number of MAGTF units that have the potential to disrupt and defeat heavier forces. And lastly, modest forces can substantially increase the odds in favor of successful Joint Operations.

The next phase of the FYEP is *Urban Warrior* which is well underway and will incorporate many of the initiatives of *Hunter Warrior*. The focus of *Urban Warrior* will be to ensure the Marine Corps can fight and win in the dense urban littoral areas of the world in the 21st Century.

The third AWE -- *Capable Warrior* -- is the culminating phase of our five-year Experimentation Plan. It will focus on fleet and force level operations across the entire spectrum of war, including Military Operations Other Than War (MOOTW). Applicable concepts, tactics, and technologies from *Hunter Warrior* and *Urban Warrior* will be incorporated. *Capable Warrior* is scheduled to begin in 1999.

The FYEP is ambitious, and is coordinated with the Navy. Its goal is to improve the capability of Navy and Marine Corps expeditionary forces across the spectrum of conflict. The FYEP is supported by an Advanced Concept Technology Demonstration (ACTD), “Extending the Littoral Battlespace,” which focuses on command and control and fires and targeting. Further, it is designed to develop integrated systems to satisfy military demands using a combination of commercial off-the-shelf (COTS) technology, ACTD programs, and by improving or augmenting existing systems.

In an attempt to capitalize on technological innovation, the MCWL has strategically placed liaison officers with the Army and other DoD warfighting laboratories, institutions of higher education, and private industry. These liaison officers enable the MCWL to interface and coordinate its experimental activities with these other institutions.

A Special Purpose Marine Air-Ground Task Force (Experimental) (SPMAGTF(X)) was established as the test organization for experimentation. The Command Element of this unit is stationed at Quantico and will use Fleet Marine Forces to round out the MAGTF major subordinate elements (MSEs) during the various experimental phases in support of the FYEP. Each phase will be comprised of a number of Limited Objective Experiments (LOEs) and an Advanced Warfighting Experiment (AWE).

Marine Corps Position

The Marine Corps will continue to aggressively examine its concepts and capabilities, and through innovation and experimentation will maintain the status as our Nation’s force-in-readiness. The MCWL will ensure that the Marine Corps investment in experimentation, coupled with science and technology, permeates the Marine Corps doctrine, organization, education, and equipment, and influences the Nation’s security policy.

Power Projection Capabilities

Discussion

Rapidly projecting decisive military power is key to the National Military Strategy (NMS) in which Marine amphibious and maritime prepositioning forces play a critical role. Revitalizing the necessary platforms and improving the effectiveness of these expeditionary forces is a major goal. To fully exploit development of these capabilities, the Marine Corps will consistently blend advances in technology with newly developed operational concepts. Today, the Navy-Marine Corps Team is rapidly implementing our strategic and operational concepts of “Forward...from the Sea” and Operational Maneuver from the Sea (OMFTS) to take full advantage of the littoral environment and the maneuvering space it provides. Emerging technology now makes the OMFTS concept a near-reality and enables a tremendous increase in the flexibility, agility, and lethality of our Marine expeditionary forces -- significantly expanding naval power projection capabilities. The following initiatives are key to the achievement of our operational objectives:

- Advanced Amphibious Assault Vehicle (AAAV)*** is critical to our future ability to project power inland from amphibious ships. Increased speed and survivability allow a faster buildup of combat power ashore, ensuring greater force survival and effectiveness to fight the land battle. Its capabilities expand our ability to implement tactical maneuvers from ship to objective area from over-the-horizon (OTH), creating significant operational advantages. The AAAV will replace the current AAV7A1 family of amphibious assault vehicles, which are now more than 20 years old.
- MV-22 Osprey*** tiltrotor aircraft allows combat power to transition ashore faster and increases the depth of the battlefield through its enhanced range, endurance, and flexibility. It replaces the aging medium lift CH-46 Sea Knights and CH-53D Sea Stallions. While fulfilling the Marine Corps critical medium lift requirement, the MV-22's increased capabilities provide significant tactical and operational leverage. The MV-22 is integral to making OMFTS a reality.
- Landing Craft Air Cushion (LCAC)*** is a shipborne, high speed, over the beach, ship-to-shore, OTH amphibious landing vehicle capable of a 60 ton payload. The payload includes both troops and equipment as heavy as the M1A1 Tank. The LCAC significantly increases the build up rate ashore. A service life extension program (SLEP) will ensure its viability into the future.



❑ **Maritime Prepositioning Force (Enhancement)** (MPF(E)) alleviates shortfalls in the existing Maritime Prepositioning Ship (MPS) squadrons and provides new capabilities to correct deficiencies highlighted during *Desert Storm*, and *Operation Restore Hope*. These new ships will carry additional equipment and supplies to include: an expeditionary airfield, a Naval Mobile Construction Battalion, and fleet hospital equipment. The result will be a much more capable MPF.

❑ **Shallow Water Mine Countermeasures (SWMCM)** program is designed to improve critical deficiencies in mine countermeasures. The development of technology and systems to detect, clear, and neutralize these threats is vital to allow our forces to maintain presence, to maneuver unencumbered throughout the littoral areas and to effectively project combat power ashore.

❑ **Naval Surface Fire Support (NSFS)** is an essential dimension of our power projection capabilities. The current program is focused on development of a high energy modification to the existing 5-inch/54 caliber gun and an Extended Range Guided Munitions (ERGM). This program is expected to begin meeting Marine Corps operational requirements by FY01. The long-term program calls for the development of a larger caliber gun and the ship-board adaptation of extended range missile systems similar to ATACMS, SEA SLAM, or standard strike variants. These enhancements will provide a critical boost to Marine

amphibious capabilities and result in extended, more accurate and more lethal support to maneuver forces ashore.

☐ **Joint Strike Fighter (JSF)** provides the Marine Corps with a state of the art, next generation, short takeoff and vertical landing (STOVL) aircraft to replace the AV-8B and F/A-18A/C/D. It will provide the Marine Corps with a superior performance, stealthy, state-of-the-art technology, multi-mission jet aircraft that can operate with full mission loads from amphibious class ships or austere expeditionary airfields. This blend of stealth, superior performance, and basing flexibility will enable the ASTOVL JSF to perform a broad range of OMFTS missions. They include: escorting the MV-22, striking critical deep targets, providing armed reconnaissance and close-air-support, suppressing enemy air defenses, and conducting active air defense missions. With the ASTOVL JSF Marine aviators will be able to support the full range of OMFTS mission profiles, providing Marine ground forces with the precise and timely fire support they will need on the 21st Century battlefield.

Marine Corps Position

Technological advances enable the Marine Corps to rapidly move OMFTS from the concept stage to reality. Our acquisition focus is to leverage technological initiatives that improve the mobility, flexibility, and lethality of our Marine expeditionary forces in a cost-effective manner. Support for these programs will be in concert with both the National Military Strategy and the objectives of the Marine Corps in supporting this strategy.

Advanced Amphibious Assault Vehicle

Discussion

In the 1980s, the Navy and Marine Corps developed the concept of over-the-horizon (OTH) assaults to avoid enemy strengths, exploit enemy weaknesses, and protect Navy ships from increased land-based missile threats and sea-based mine threats. This littoral warfare concept has matured into the Operational Maneuver from the Sea (OMFTS) concept. The AAAV Program, together with the MV-22 Osprey tiltrotor aircraft and the Landing Craft Air Cushion (LCAC), will provide the tactical mobility assets required to spearhead the OMFTS concept. Each system is an integrated element that will permit the Navy-Marine Corps team to fully exploit littoral areas as maneuver space. The AAAV is critically important to maneuvering a mobile and survivable surface assault force that can quickly secure inland objectives. The AAAV's swift and independent transit from OTH is the tactical assault capability currently lacking to enable LCACs to perform the follow-on assault and logistics functions for which they were originally designed. In addition to its greatly increased speed on the water, the AAAV will provide superior land mobility, tremendously increased firepower and advanced survivability features that compare to the best land fighting vehicles in the world.

The AAAV's unique capabilities include: (1) over three times the water speed of the current AAV7A1; (2) nearly twice the armor protection of the current AAV7A1 (already enhanced by applique' armor); (3) the ability to defeat future threat light armored vehicles; (4) land mobility equal to or greater than the M1A1 tank; (5) lift and carrying capacity for a reinforced rifle squad; and, (6) the only combat vehicle system for infantry in the U.S. inventory that provides NBC protection for both the crew and embarked personnel. All of these capabilities will increase the survivability of the amphibious assault forces and the flexibility of future Task Force Commanders.

Marine Corps Position

The AAAV Program will allow the Navy and Marine Corps to seamlessly link maneuver at sea with operational maneuver ashore. It provides a critical capability for OTH forcible entry -- a key component of OMFTS.

MV-22 Osprey

Discussion

Today, the Corps stands on the threshold of a revolutionary capability employing 21st Century technology. Recognizing the tremendous operational advantages of tiltrotor technology, the Marine Corps has championed the development of this innovative aircraft. The impact of this capability will be as far-reaching as the Marine Corps introduction of helicopters on the battlefield in the Korean War.

In December 1994, the Secretary of Defense announced the decision to replace the CH-46 Sea Knight with the MV-22 Osprey. The new tiltrotor aircraft has greater speed, range, and payload. It will carry 24 combat-loaded Marines. The MV-22 will enable the MAGTF to exploit its combat power and effectively execute OMFTS well into the 21st Century.

Strategically mobile, the Osprey is capable of global self-deployment with its aerial refueling ability. The combination of range, speed, and payload of the MV-22 nearly triples the depth of a MAGTF's present day area of influence. This significantly complicates an enemy's defensive requirements and inhibits his opportunity to concentrate his forces. The superior combat radius of this aircraft allows Navy ships to maintain adequate stand-off distance from enemy shore-to-ship missiles, enhanced observation devices, underwater mines, and other developing threats.

In today's regional environment, the expeditionary Marine is the most capable and cost-effective option among deployable conventional forces. The arrival of the MV-22 in the Fleet Marine Force will provide the flexibility needed to prevail against the increasing uncertainty of future aggressors.

Marine Corps Position

The acquisition of the MV-22 represents a tremendous improvement in our ability to project power from OTH towards inland objectives in OMFTS. The MV-22 remains the Marine Corps number one and most critical aviation acquisition priority.

Amphibious Shipping

Discussion

Naval expeditionary forces, with embarked Marines, provide forward presence and flexible crisis-response forces for employment in support of foreign policy objectives. These forces provide the most formidable forcible entry capability in the world. The development and maintenance of this capability is the statutory responsibility of the Marine Corps as directed by Congress in Title X.

Amphibious lift requirements support the National Military Strategy (NMS) and are tailored to meet real world day-to-day commitments, as well as satisfy combat surge requirements.

Twelve Amphibious Ready Groups (ARGs) are required to meet U.S. forward presence commitments in the Mediterranean, Persian Gulf, and Western Pacific. The big deck amphibious ships (LHA/LHD/LPH) are the heart of every ARG, and currently 11 big deck ships are in the inventory. The current program will bring the number of big decks to twelve by FY 01 as two new LHDs are commissioned and the last two LPH's are decommissioned over the next four years.

The Mobility Requirements Study (MRS) indicated the need for 3.0 Marine Expeditionary Brigade (MEB) equivalents of surge lift. Fiscal constraints, however, have limited the lift to a programmatic goal of 2.5 MEB equivalents. Current Navy shortfalls in vehicle lift capabilities are being alleviated by the maintenance of LKAs and LSTs in the Naval and Ready Reserve Force. This reduces the shortage of available lift until ships of the LPD-17 class are commissioned into service.

The shortfall in amphibious shipping remains an area of concern. Early retirements and block obsolescence have sharply reduced the total number of amphibious ships. Accordingly, the LPD-17 program, designed to be the functional replacement for the lift provided by four ship classes (LPD-4, LSD-36, LKA, LST), is essential. This program provides an affordable, air-capable, LCAC-capable, wet-well ship that is optimized to meet our surge lift requirement.

Marine Corps Position

Naval expeditionary forces require a 12th big deck (LHD) to support worldwide forward presence. Early and economical procurement of twelve LPD-17 ships is critical for the Marine Corps to meet its OMFTS requirements.

Maritime Prepositioning Force

Discussion

The Maritime Prepositioning Force (MPF) is a key element of the Marine Corps' expeditionary capability, providing the rapid deployment of expeditionary forces practically anywhere in the world through the link-up of personnel from the operating forces with prepositioned, sea-based equipment and supplies. The three current Maritime Prepositioning Ship (MPS) squadrons, composed of thirteen ships, provide our Nation a unique geo-strategically prepositioned capability. Employment of MPS assets during *Desert Shield/Desert Storm* and *Vigilant Sentinel* against Iraq, and in *Restore Hope* and *Continue Hope* in Somalia, clearly demonstrated their utility for a wide range of military operations from general combat to disaster relief and humanitarian assistance.

Lessons learned during these operations revealed the need for improvements in MPF capabilities. Our MPF enhancement (MPF(E)) program will add an additional ship to each squadron (for a total of three additional ships). These additional ships will be loaded with heavy engineer support equipment, fleet hospitals, Marine Corps standing task force headquarters equipment, and expeditionary airfield (EAF) sets. The EAFs

will dramatically increase our combined arms combat power without dependence on existing airfields or aircraft carriers. In support of this concept, Congress has appropriated a total of \$360 Million for the purchase and conversion of the three MPF(E) ships. The first two of these ships are expected to enter service in FY00. The third MPF(E) ship is expected to enter service in FY01.



Marine Corps Position

A MPF remains a cost-effective, proven, and relevant capability for use in responding to crises overseas. It is consistent with "Forward...From the Sea," and significantly increases responsiveness to contingencies and improves operational flexibility for combat, disaster relief, and humanitarian assistance operations.

Discussion

This essential warfare capability is integral to the ability of naval forces to effectively open and maintain sea lines of communication and to operate in the littoral battlespace. A considerable array of modern mine countermeasure (MCM) systems continues to be developed and procured for MCM forces. With the recent addition of MCM command and support ship USS Inchon (MCS-12), the U.S. has improved its expeditionary mine countermeasure capability.

Our airborne MCM (AMCM) forces provide the only truly rapid deployment MCM capability available today. Currently being fielded with our AMCM forces, the enhanced minehunting capability of the new AQS-14A digital sonar processor greatly increases minehunting readiness and sustainability. AMCM forces are also receiving improved MK 105 Mod 4 sweep sleds with longer mission life, greater power, and much improved reliability.

Surface MCM (SMCM) force capability also continues to increase. The last of the fourteen MCM-1 class ships has been delivered and is in service. The Osprey class coastal minehunters (MHC) are being delivered at a rate of two per year and are performing as designed. Working closely with our surface and airborne MCM forces, Navy Explosives, Ordnance and Disposal (EOD) systems are being fielded that improve the diver's ability to locate and neutralize mines.

Focused S&T and developmental efforts are producing technological solutions to difficult mine warfare problems. For very shallow water and surf zone (SZ) regions, efforts such as the Shallow Water Assault Breaching (SABRE) System and the distributed explosive technology (DET) net system are in development. These two systems are designed to be used together to defeat mines and obstacles from the seaward edge of the Very Shallow Water (VSW) to the high water mark. Another system being supported within our program to improve our organic MCM capability is the Remote Mine-Hunting System (RMS) which will provide an organic, surface ship-hosted mine reconnaissance capability.

Marine Corps Position

To improve critical deficiencies in mine countermeasure, continued support of the shallow water mine countermeasure (SWMCM) program is crucial. Focused S&T and developmental efforts to detect, avoid, clear, and neutralize these threats will allow us to maximize our naval expeditionary force and power projection capabilities.

Naval Surface Fire Support

Discussion

OMFTS has placed increasing demands on Naval Surface Fire Support (NSFS). Sea-based fire support will be required to support the joint operations, and integrate its fires with maneuver over an extended battlespace. Near and mid-term initiatives to meet NSFS requirements include improving existing guns and developing an extended range guided munitions (ERGM) and a rapid response land attack missile.

The modification of the current shipboard 5-inch/54 caliber gun mount, in conjunction with the development of an ERGM, will fulfill the near-term NSFS mission need. The ERGM is a 5-inch projectile with an improved rocket motor and guidance system which will provide a range capability in excess of current ballistic missiles (40-60 nautical miles (NM)). The ERGM gains enhanced range and accuracy by combining the Global Positioning System and the Inertial Navigation System with ground and composite technologies. This will enable surface ships to engage targets ashore in excess of 60 NM, and potentially, to greater than 100 NM. The warhead will accommodate submunition bomblets which are effective against troops and light armor.

The rapid response land attack missile must be capable of providing a quick response (less than 10 minutes) strike capability to supported naval expeditionary forces. Two systems, the Army Tactical Missile System (ATACMS) modified for ship board employment and a modified version of the Navy Standard Missile, are being considered to fill this role. Standard ATACMS missiles contain multiple submunitions which are effective against a wide variety of targets. The Army and Navy are jointly developing and testing a warhead that would give ATACMS the capability to destroy deeply buried or hardened targets. Modifications to the Standard Missile would provide capabilities similar to that of ATACMS. Studies are underway to determine the most cost-effective solution for providing a rapid response, all-weather strike capability to naval expeditionary operations ashore.

Marine Corps Position

Current and future NSFS requirements are being addressed through munitions and hardware improvements. These improvements will enable NSFS to effectively support OMFTS operations and give the MAGTF commander greater operational and tactical flexibility in executing his missions.

San Antonio Class Landing Assault Ship

Discussion

The operational flexibility of Amphibious Readiness Groups (ARGs) will be significantly enhanced with the FY02 delivery of LPD-17, USS San Antonio, the first of twelve new landing assault ships to be procured between FY96 and FY04. As a class, these ships will overcome amphibious lift shortfalls caused by the decommissioning of aging LPDs, LSTs, LKAs, and LSDs. Each 25,000 ton ship will provide a large lift

capacity for the rapid build-up of forces ashore. These ships will augment the versatility of the LHD and LHA helicopter carriers with well deck and flight operations capabilities.



Individually, the ships will carry 720 Marines, have a vehicle stowage capacity of 25,000 square feet, a well deck sized for two

LCACs, and a flight deck for the simultaneous operation of two CH-53E Super Stallions, two MV-22 Osprey tiltrotor aircraft, or four CH-46 Sea Knight helicopters. The ship class will be outfitted with the Rolling Airframe Missile (RAM) system for self-defense and incorporates design features which present a significantly reduced radar cross section compared to previous amphibious ships. The lead contract was awarded in December 1996 to Avondale Industries, with initial delivery scheduled for FY02. In FY99 the second of the San Antonio class of amphibious assault ships will begin construction.

Marine Corps Position

Maintaining projected delivery schedules and attaining operational readiness of this ship class is key to eradicating existing shortfalls in amphibious lift. Ensuring that the ship maintains a robust self-defense capability as threat systems evolve is key to survivability in the littoral environment. Expanding the offensive capability of the ship to include a limited NSFS and strike capability is worthy of examination as an option to expand the striking power and flexibility of surface forces operating in the littoral.

Discussion

The expeditionary character of Marine Aviation allows it to operate effectively across the full spectrum of basing options. Marine Tactical Aviation (TACAIR) squadrons deploy from conventional airfields when available, such as we did during **Desert Storm**, have recently done in Turkey, and are now doing in Italy. Marine TACAIR has a long tradition of flying off aircraft carriers and amphibious ships as sea-based airpower, as AV-8Bs and F/A-18s continue to do today. In the absence of adequate runways, the Marine expeditionary airfield system provides the capability to rapidly construct stand-alone airfields to support forward-based tactical air operations.

Historically, the flexibility of Marine TACAIR to integrate with and reinforce naval operations is well established. Marine squadrons deployed aboard aircraft carriers in World War II, the Korean War and Vietnam. More recently, Marine squadrons, operating as part of Navy carrier air wings and off amphibious ships, have participated in such operations as **El Dorado Canyon, Southern Watch, Restore Hope, Deny Flight, and Deliberate Force**. Every MEU(SOC) Composite Squadron includes AV-8Bs and five Marine F/A-18 squadrons are currently integrated with USN Carrier Air Wings. Those Marine TACAIR assets that aren't assigned to support shipboard deployments maintain the capability to do so.

Marine TACAIR squadrons operate as an integral part of the MAGTF where rapid response to international crisis is the norm. Recently, during the beginning days of **Operation Deny Flight**, Marine TACAIR responded within 48 hours of the deployment order.

In keeping with our expeditionary nature, Marine TACAIR will continue to maintain its aviation forces in a high state of readiness. The capability to task organize and deploy Marine TACAIR assets aboard ships or to expeditionary land bases, to any location in the world, within 72 hours of notification will remain the standard of excellence required of the Nation's force-in-readiness.

When necessary, Marine TACAIR forces can begin operations in an austere environment in less than seven days by using existing roads or prefabricated VSTOL pads and can have a fully operational expeditionary airfield, capable of sustained fixed-wing operations, constructed and operating in 30 days.

For the past 60 years, Marine TACAIR forces have written the book on Expeditionary Air Operations. We have been, and will continue to be, ready to deploy a task organized, air-heavy MAGTF capable of the full

spectrum of tactical aircraft missions, in joint and coalition environments, to both existing airfields and austere locations.

Marine Corps Position

Air support to the MAGTF commander remains the primary mission of Marine aviation. Units scheduled in support of MAGTF elements must be trained to a level of proficiency which satisfies the MAGTF commander. Each service brings unique capabilities to joint warfare that, when integrated under joint doctrine, improves service interoperability and overall warfighting effectiveness.



Joint Strike Fighter

Discussion

The Defense Department established the Joint Strike Fighter (JSF) program to develop technologies that would lead to the replacement of several different aircraft systems. The JSF program is intended to provide the next generation aircraft for the Marine Corps, Navy, Air Force, and the British Royal Navy. Specifically, the Marine Corps needs to replace the AV-8B and F/A-18C/D aircraft with a single Short Take-Off and Vertical Landing (STOVL) platform. The Air Force needs a replacement for the F-16. The Navy requires a first day of the war, survivable aircraft to complement the F/A-18E/F. The Royal Navy is interested in replacing the Sea Harrier with a STOVL Fighter/Attack aircraft. The JSF program



strives to fulfill the needs of all three services, and the Royal Navy, through the concept of a family of operational aircraft. This approach will result in optimal commonality between variants and minimize aircraft life cycle cost. This family of JSF aircraft will include a STOVL variant (Marine Corps, Royal Navy, and possibly the U.S. Air Force), a Conventional Take-Off and Land (CTOL) variant (U.S. Air Force), and an aircraft carrier capable variant (Navy). The responsibility for meeting

these service requirements with this next generation strike fighter rests within the JSF Program Office.

The Marine Corps requirements for this aircraft are focused on readiness, large deck amphibious ship basing, expeditionary capability, and the combined-arms concept. The primary missions for the Marine Corps JSF will remain close air support, armed reconnaissance, interdiction, and anti-air warfare. Secondary missions will include suppression of enemy air defenses, command and control of aircraft and missiles, and reconnaissance. The Marine STOVL version of the JSF will be highly lethal, responsive, flexible, and fit our neckdown strategy. The aircraft will be survivable and supportable, as well as light enough to meet our expeditionary needs. Furthermore, the next generation strike fighter must be affordable to ensure that sufficient numbers are available to maintain the character and capability of Marine Corps aviation.

Marine Corps Position

The STOVL JSF is absolutely critical to the Marine Corps of the 21st Century. It will solve our TACAIR age and attrition problems and meet Marine aviation's goal to neckdown to a single type of fixed wing aircraft. But more importantly, it will provide the Marine Corps with a superior performance, stealthy, state-of-the-art technology, multi-mission jet aircraft that can operate with full mission loads from amphibious class ships or austere expeditionary airfields. The STOVL variant of the JSF will be a top line fighter, a superior attack platform, and an escort for the MV-22 -- all in one platform. Its stealth characteristics, flexible basing posture, and superior performance in all mission areas will revolutionize air warfare and naval aviation. Delivery of the JSF is scheduled to begin around 2007 and will bring the Marine Corps closer to the vision established in 1957 by Commandant Randolph McCall Pate, of an all STOVL aviation force.



Marine Helicopter Recapitalization

Discussion

The Marine Corps has a long history of innovative solutions to warfighting requirements. In the past, when faced with the expense of replacing older aircraft such as the early versions of the AH-1, CH-46, and AV-8, the Marine Corps found affordable solutions by modernizing existing aircraft. This is the same approach being taken to upgrade the fleet of utility and attack helicopters.

In 1995, the Secretary of the Navy approved the Marine Corps program to upgrade both utility and attack helicopters. This program, known as the H-1 upgrade, recapitalizes the entire fleet (100 UH-1N and 180 AH-1W) through the remanufacture of existing UH and AH airframes with the installation of a four-bladed rotor system, a newly developed drive train, and more powerful T700 engines. Improved cockpit integration and modern avionics systems will enhance joint interoperability as both aircraft will be able to transmit to, and receive information from, aircraft or ground units of the other services. In sum, this program incorporates all previously funded or planned modifications into one program, avoiding the cost of a “new start” replacement aircraft until a Joint Replacement Aircraft is fielded.

The H-1 upgrade program will dramatically increase the range, speed, payload, and lethality of the fleet while decreasing our logistic “footprint”. The utility variant will operate at nearly twice the current range with over double the payload. The attack variant will realize similar performance increases. It will also carry twice the current load of precision guided munitions with the addition of two ordnance stations. Both aircraft will achieve speeds of over 150 knots at most mission weights. Through use of the same major components, parts support for the fleet will be simplified, resulting in leaner logistic trains and more space available on space-constrained amphibious and MPF ships. Moreover, these improvements will make the Marine Corps attack and utility helicopter capabilities more compatible with the performance demands of OMFTS concepts.

Marine Corps Position

The H-1 upgrade program is an economical and comprehensive upgrade of both UH-1N and AH-1W helicopters that will resolve existing operational safety issues while significantly enhancing the capability and operational effectiveness of the attack and utility helicopter fleet. A key modernization effort, the H-1 upgrade will provide a bridge until the introduction of the Joint Replacement Aircraft in the 2020 time frame.

Marine Corps Aviation Modernization

Discussion

In addition to the aviation recapitalization programs, several significant aviation modernization programs have been initiated or are underway to restore and enhance the capabilities of existing aviation platforms. This modernization effort is a significant component in our overall recapitalization effort which has allowed us to use current and enhanced capabilities to sustain our combat edge while we develop the next generation of aircraft, weapon systems and munitions. Vital to the Marine Corps aviation modernization effort is the initiative to remanufacture our fleet of aging AV-8 attack aircraft. Other important aviation modernization initiatives include the CH-53E Service Life Extension Program (SLEP), the CH-46 dynamic component upgrade (DCU), the AH-1W Night Targeting System (NTS) upgrade, the Advanced Tactical Air Reconnaissance System (ATARS), Pioneer (UAV) and Aviation Command and Control Modernization. These efforts, as well as many others are vital to ensuring a capable and potent Marine Corps in the future.

The AV-8B Remanufacture Program upgrades Day Attack aircraft into a more capable Radar/Night Attack variant. The wing and many original items are retained. Added to a new fuselage is a night attack avionics suite (NAVFLIR, digital moving map, color displays, NVG lighting) and a surplus APG-65 multimode radar from the F/A-18. The aircraft receives the more powerful and reliable Pegasus (-408) engine and an additional 6,000 hours of airframe life for 80 percent the cost of a new aircraft.

The CH-53E SLEP is critical in sustaining our aging fleet of heavy lift helicopters until a Joint Transport Rotorcraft is developed sometime in the second decade of the next century. The current fleet of aircraft begin to reach their service life early in the 21st Century. This SLEP is currently programmed in two phases. Phase I essentially maintains the air worthiness of the fleet of helicopters by modifying the airframe in critical structural wear points, improving tail rotor drive-shaft components and removing and replacing older KAPTON wiring. Phase II goes beyond basic air worthiness improvements with upgrades due to obsolescence for avionics, cockpit integration, internal and external cargo systems, safety and survivability components and dynamic components.

The CH-46E DCU is essential to maintaining our medium lift assets until those aircraft can be replaced by the MV-22 Osprey. The DCU replaces rotor heads, critical components in the flight control system, and certain drive train and transmission components. The DCU will remove

all of the burdensome flight restrictions now in place on the CH-46E (10 hour inspections, weight restrictions, operating limits). A total of 105 aircraft have received the new DCU rotor heads.

❑ ***The AH-1W NTS Upgrade*** includes Forward Looking Infrared (FLIR), Low Light Television, Laser Designator/Range Finder, and an automatic boresighting and tracking system. This multi-faceted enhancement enables the AH-1W to conduct its mission on a 24 hour basis and under conditions of reduced visibility. This expands the Cobra's warfighting capabilities by increasing detection, recognition and identification ranges in most degraded weather conditions to include low light level conditions. The laser rangefinder also enhances conventional weapons delivery as well as supporting arms coordination missions while the laser designator provides an autonomous weapons engagement capability for the Hellfire missile.

❑ ***The ATARS*** is designed for the F/A-18D to restore manned aircraft airborne reconnaissance capability to the MAGTF. The ATARS incorporates multiple sensor capabilities including Electro Optical (EO), infrared (IR) and Synthetic Aperture Radar sensing. The man in the loop remains the strength of this system. ATARS equipped aircraft will carry all sensor capabilities simultaneously. This multi-sensor capability will be available to and completely selectable by the aircrew in flight. Another significant capability of ATARS is its ability to digitally transmit collected data in near real time to ground receiving stations. This information can be provided to various information/intelligence systems for national exploitation via the Joint Service Imagery Processing System Tactical Exploitation Group (JSIPS TEG). Consequently, ATARS with its significant capability, is poised to become a major contributor in the national imagery arsenal.

❑ ***The Pioneer System*** will be the Marine Corps' backbone Unmanned Aerial Vehicles (UAVs) until a replacement is fielded. UAVs will grow in importance as the capability of these futuristic machines is developed. The Marine Corps ultimately views a VTOL capable UAV as a possible end state platform for the flexibility necessary for OMFTS. The Tactical Control Station (TCS) remains central to our developmental efforts. TCS will give us a Ground Control Station (GCS) with tremendous growth potential as well as connectivity with the whole family of UAVs from tactical to the High Altitude Endurance (HAE) UAVs, as well as Intelligence nodes. The Dragon Drone, a small, short range, low cost UAV, that the Marine Corps Warfighting Laboratory is experimenting with, will provide important concept of operations experience and significant data on emerging technologies such as airframes, power plants, data links, and recovery systems.



Aviation Command and Control Modernization. All current Marine Aviation Command and Control Systems (MACCS) are being replaced incrementally by the Common Aviation Command and Control System (CAC2S). CAC2S will provide a system that is capable of plugging into the Joint/Combined environment and is rapidly deployable and horizontally employable. CAC2S will stress shipboard compatibility while retaining joint capability ashore. Funded improvements to AN/TPS-59, the Marine's three dimensional, long-range radar, include enhanced detection, tracking, and cueing of smaller radar cross section targets. The improved radar provides land-based air surveillance for the Marine component of a Naval force, and is a contributing sensor to the US Navy's Cooperative Engagement Capability (CEC). This system is also capable of providing early warning as well as point of origin/point of impact calculation in support of theater missile defense. Marine Aviation command and control will provide the landward "eyes" for sea-based shooters as well as engagement control for land based systems, and radar intercepts for airborne platforms. CAC2S will contribute to a commander's ability to have full spectrum situational awareness. This will produce a joint, common, continuous and unambiguous air picture with fire quality data. This capability will enhance early detection, classification and identification of all tracks, and provide defense-in-depth with 360 degree coverage.

Marine Corps Position

The Marine Corps continues to pursue new and innovative weapon systems improvement and modernization efforts such as the AV-8B Remanufacture, CH-53E SLEP, CH-46 DCU, AH-1W NTS upgrades, ATARS, Pioneer UAV, and Aviation Command and Control Modernization to maintain its combat superiority and tactical relevance in the changing world.

Marine Corps Readiness

Discussion

Sustaining the readiness of our Corps remains our highest priority. The fiscal trends of the past years are impacting upon our ability to fully achieve the balance between readiness and other crucial programs such as force structure, recapitalization, and modernization. Operating tempo remains high which places a strain on two key components of readiness: manpower and equipment. While our forward deployed force remains



ready, some of the cost of sustaining that readiness is borne by units which remain at home. Our challenge in 1998 is to maintain our traditional high state of readiness, to be good stewards of our equipment, and to take care of our people. We will continue to work refining our current readiness posture across the board, as we seek to free up resources to apply towards modernization.

As the nation's forward deployed, combined-arms force in readiness, the Marine Corps sustains a relatively high utilization rate for both its people and equipment. In the long term, our modernization plan will help us to replace antiquated and worn out equipment, with new systems whose ease of maintenance and support will contribute to sustained high readiness rates in the 21st Century.

The Marine Corps recently implemented several new initiatives/reforms to increase our readiness from within. For example, we conducted two Force Structure Reviews to define the most effective, capable, relevant, and attainable force structure for the Marine Corps. These reviews identified excess structure, that when eliminated will, allow us to reallocate Marines to, and increase manning in, our operating forces. This increased manning in our front line units will lead to increased readiness.

We have implemented our Cohesion initiative, whereby we keep Marines together in teams throughout their training and first tours in operational units. By keeping Marines together, our units will be more cohesive, and as a result more ready to fight and win. We have started applying the Cohesion initiative to our Marine infantry battalions and intend to implement it throughout the Corps.

We implemented the Marine Aviation Campaign Plan (MACP) to improve aviation safety, training, and the material condition of our aircraft. This reform will lead to improved readiness in Marine Aviation, thereby increasing the readiness of the MAGTF.

Marine Corps Position

Each and every unit in the Corps remains either forward deployed, or at the ready to deploy, to fight and win anywhere against any foe. In addition to being ready today, we are crafting plans and implementing new policies to increase our readiness for tomorrow's battles. Our modernization plans will help us build a Corps for the 21st Century, ensuring that we will meet the requirements associated with being our Nation's force-in-readiness. We have implemented new manpower, training, and maintenance programs designed to increase our efficiency, capability, and readiness, across the spectrum of conflict. These initiatives will pay tremendous dividends in preparing the Corps for the 21st Century battlefield. While the Corps is making great progress in developing new and innovative ways to increase readiness, we need to ensure that we find the means to help mitigate the effects that several years of high operational tempo has had upon our units and their equipment.

Quality of Life

Discussion

The Marine Corps is committed to efficient, effective and equitable management of Quality of Life (QOL) programs. QOL in the Marine Corps is one of the Commandant's top priorities. Taking care of our Marines and their families is inherent to the ethos of the Corps.

QOL programs directly impact readiness and operational responsiveness. As the Nation's force-in-readiness, maintaining the highest levels of operational readiness and responsiveness is paramount. Marines who know that they and their families are being taken care of are more likely to be focused on the job at hand -- combat readiness. From a long term perspective, QOL has a positive effect on recruiting, retention, and motivation to serve. These programs are tools for commanders to enhance, develop, or support Marines on an individual or unit basis.

The Commandant's QOL program priorities are: pay and allowances, medical care, housing, and a stable retirement program and service member, family, and community support programs. These priorities are consistent with those of the DoD. As such, the Marine Corps has committed significant resources to these programs.

The Marine Corps QOL Master Plan outlines our vision for the future. This vision provides for an equitable level of quality of life for all Marines and their families regardless of duty station. Additionally, the Marine Corps is innovating and experimenting with new concepts and programs in a quest to continually improve our QOL program with initiatives such as the Single Marine Program, the New Parent Support Program, and Family Team Building. The Marine Corps QOL Working Group has become the principal integrator and process owner for all QOL programs reporting to the QOL Executive Steering Committee. Overall standards are developed, but commanders, with their knowledge of local situations and circumstances, are responsible for execution.

Marine Corps Position

The Marine Corps has made a significant commitment to improved QOL to support readiness. With existing fiscal constraints, the focus continues to be on using what we have to maximize prevention and readiness.

Recruiting

Discussion

The Marine Corps Total Force depends on quality recruiting and the steady flow of new enlisted and officer accessions. During 1997, the Marine Corps continued its success by exceeding all of its assigned accession goals, as we have every month, and every year since June, 1995.

The future environment will continue to test the Marine Recruiting Force. Although the market of recruitable 17 to 21 year olds has increased, their propensity to enlist remains low. Recruiting is further impacted by low unemployment and a continued growth in college enrollment. Accession missions will remain relatively constant; however, officer diversity goals will increase.

To continue our success, the Marine Corps must ensure it maintains an adequately resourced quality recruiting team. To this end, we continuously evaluate and implement QOL initiatives for our recruiters and search for new and innovative advertising to reach our target market.

The warfighting requirements of the 21st Century mandate that we recruit the best and brightest of America's youth. They must be physically and morally fit, intelligent, and comfortable with high technology. Quality recruits mean enhanced performance, stabilized attrition, and improved readiness. As such, the Marine Corps will not waiver from its quality standards, despite an increasingly challenging market.

In spite of the challenges that lie ahead, we look to the future with great hope and optimism. The quality of the individual Marine has never been higher. With the support of the American people, our enduring image, and our continued emphasis on our unique qualities, the Corps will continue to attract sufficient numbers of high quality, young Americans with the desire to become United States Marines.

Marine Corps Position

The individual Marine continues to be our most precious asset. We must have no higher priority than the successful recruitment of this Nation's finest young men and women. The Marine Corps remains committed to a strong and adequately resourced recruiting program.



Making Marines - Transformation

Discussion

The Corps has strengthened the way it makes Marines, builds self-confidence, strength of character, and instills a common set of values. The goal of this program is not only to produce high quality Marines, capable of winning our nation's future battles, but also to make better Americans. The transformation of young men and women into Marines challenges them mentally, morally, and physically. This training comes in four phases: recruiting, recruit training, cohesion, and sustainment.

Our recruiters begin the transformation process by recruiting the highest quality men and women the Nation has to offer. The Delayed Entry Program allows recruiters to prepare recruits for the rigors of recruit training, and to expose them to our core values of honor, courage, and commitment.

Recruit training has been modified to expand the influence of Drill Instructors, as well as the amount and quality of time they spend mentoring and setting the example for their recruits. Recruit training is a twelve week program for both males and females. The Corps has retained our tried and true, tough, demanding recruit training program, but has enhanced it to ensure that the Marines we make are capable of prevailing in the future's "three-block wars." The Recruit Training Program of Instruction (POI) has been significantly realigned to provide the Drill Instructor additional tools to transform America's youth into Marines. The realignment consolidated Basic Warrior Training, previously conducted at recruit training, with Marine Combat Training (MCT) at the Schools of Infantry, producing an improved training continuum of combat skills training for non-infantry Marines.

The culmination of recruit training is the "Crucible," an intense field training exercise designed to build unit cohesion, reinforce our core values, and complete the transformation from recruit to Marine. The "Crucible" event is the defining moment of the recruit training experience. As a "right of passage," the "Crucible" is a 54-hour ordeal that tests the mettle of every recruit. The physical and mental challenges are intensified by sleep and food deprivation. The "Crucible" focuses on six major field events and is augmented by eleven challenging "Warrior Stations." Throughout this rapid-paced exercise, emphasis is placed on the importance of teamwork in overcoming adversity and adaptive problem solving. The teams of recruits, under the leadership of their Drill Instructor, succeed as a team. The experience pushes recruits to their limits and culminates the transformation process.

Following recruit training, newly forged Marines are assigned into teams under a new program called "Cohesion." This program builds and assigns the recruits into teams from the "Crucible" through initial MOS training and then into the Fleet Marine Force (FMF). Unit cohesion is designed to develop team integrity through the assignment of Marines who will remain together throughout their first term of enlistment, building bonds and developing confidence in one another. Achieving this objective requires synchronization of team assignments with deployment cycles so teams spend as much time as possible together in a unit. Ideally, first-termers will spend their entire enlistment with one unit. The focus of initial efforts is on ground combat units, but will ultimately be implemented throughout the Marine Corps.

The transformation process is sustained through the reinforcement of core values in the FMF and by holding Marines strictly accountable throughout their careers. This new program will provide stronger, smarter, and more capable Marines who have the maturity and flexibility to meet the challenges of the 21st Century battlefield.



Marine Corps Position

The recruit training process has been strengthened to better prepare Marines for the challenges of the 21st Century. The resulting "Transformation" produces better trained Marines with a stronger appreciation for the Marine ethos. More cohesive units will improve our readiness posture and combat capabilities. The daily performance and conduct of our Marines will reflect the values of our Corps -- Honor, Courage, and Commitment -- and the ideals of the Nation it serves.

Gender Integrated/Segregated Training

Discussion

The purpose of recruit training is simple -- to make Marines. The young men and women who arrive at the recruit depots are generally away from home for the first time. They have brought with them diverse perceptions of right and wrong and their understanding of permissible behavior. Their experiences with authority figures may have been good or bad, proper or improper/abusive. The only thing they have in common is their desire to be a Marine. By capitalizing on that desire, recruit training transforms these individuals from many diverse backgrounds into Marines imbued with a common set of values and standards.

Although recruit training teaches basic military skills such as physical fitness, close order drill and marksmanship, it does not train the recruit to fight and survive in combat -- that comes later at Marine Combat Training (MCT). Instead, recruit training is more truly a socialization process. Civilians are transformed into basic Marines. It is a physically and mentally challenging ordeal, one that requires constant supervision. Drill Instructors control and manage that transformation through constant interaction with their recruits. They teach core values, institutional "rights" and "wrongs" and what constitutes proper authority. This teacher-student/father-son/mother-daughter relationship is the heart and soul of the recruit training experience.

In gender segregated recruit training, the strong, positive role of the Drill Instructor provides impressionable young men and women appropriate role models. For women it also removes the stereotype that only men can be authority figures. They see strong female role models not only in control of them and their group, but also positively interacting with other male Drill Instructors. Women recruits very early in their training cycle come to realize that they can be strong, assertive leaders. Gender segregated training provides an environment free from latent or overt sexual pressures, thereby enabling recruits the opportunity to focus on and absorb Marine standards of behavior.

Additionally, gender segregated training takes into consideration the difference in physical strength and endurance between male and female recruits. The recruit training physical conditioning program has two primary objectives -- to achieve and maintain a peak level of physical fitness and to build confidence. As a result, initial physical fitness standards are adjusted to accomplish both goals given the starting level of each sex. Fully integrated recruit training with a common standard would result in either lowering the male standards or increasing the female failure/attrition rates -- neither of which is acceptable.

The case for gender integrated training rests on the “train as we fight” thesis which argues that men and women should train in gender integrated units because that is the way they will fight. This argument generally misses the point that the Marine Corps, unlike the other Services, has a block of training entitled MCT, between recruit training (socialization) and military occupation skill training. It is at MCT that newly forged Marines are actually taught combat skills and that training is conducted in partially-integrated units at MCT-East, Camp Lejeune. Women Marines undergo MCT only at Camp Lejeune due to the smaller number of female accessions, justifying a single site. Another important distinction is that MCT occurs after the intense transformation process that produces Marines with strong and clear standards of behavior and the values, mental and physical toughness, self-reliance, and confidence essential to earn the title “Marine.”

After Transformation, Marines are then, and only then, placed in a combat training environment. And, most appropriately, it is in this expeditionary training environment that they will be organized into gender-integrated units for the first time. At MCT, both male and female Marines will be taught and led by male and female Marine Officers and Non-Commissioned Officers. Both male and female Marines will see a gender integrated chain of command function, will see professional conduct between male and female leaders, will experience their leadership in tough, night and day, field conditions, and will see both male and female leaders emplace machine guns and lead patrols. In sum, male and female Marines will see themselves as members of the same team committed to performing the same tough duties, mentally and physically, in the same demanding environment, and from that experience, develop an appreciation of each other as professionals.

Marine Corps Position

The Marine Corps will continue to make Marines that are tough, dedicated and imbued with the values of the Corps, honor, courage, and commitment. Throughout this process we will emphasize the individual respect for and human dignity of all Marines. The current Marine Corps policy regarding gender segregated recruit training is sound and is supported by the Kassebaum Baker Congressional Committee chartered to evaluate this policy across the Services. Marine Corps gendered integrated training is consistent with the “train as we fight” approach and commences at MCT.

Marine Corps Security Forces

Discussion

During 1997, the Navy and Marine Corps continued to work to improve Naval Security and Force Protection worldwide. The Downing Commission report following the tragic bombing of the Khobar Towers in Saudi Arabia provided numerous DoD force protection recommendations. One of the recommendations was for every Service to have a force similar to the Marine Corps' Fleet Anti-terrorism Security Teams (FAST). The Commission observed elements of a FAST Company providing temporary security augmentation around the Mannai Plaza in Bahrain and found no parallel in theater. The Mannai Plaza is similar to the Khobar Towers as it provides overflow housing for Sailors assigned to COMUSNAVCENT. Currently, FAST Marines have been replaced by a more permanent Marine Corps Security Force Company to provide security around the Mannai Plaza and elsewhere in COMUSNAVCENT.

Recognizing the capability that FAST provides Naval forces overseas, the Marine Corps recommended that select Fleet Commanders in Chief (CINCs), (COMUSNAVCENT, CINCPACFLT, and COMUSNAVEUR) be assigned a FAST Platoon. Heretofore, FAST assets have been consolidated in a FAST Company in Norfolk, VA, and have been responsive to the needs of ships and installations worldwide. The forward deployment of three FAST Platoons makes them more responsive to the needs of the Fleet CINCs and provides a marked increase in the force protection assets available to each Fleet CINC. Deployment of the three FAST Platoons will begin in February 1998 and is scheduled to be complete by July 1998. FAST Marine platoons will unit deploy every six months to maintain training. A second FAST Company will be established in Yorktown, VA, to provide an eleven platoon base of FAST Marines to support all FAST missions.

To source the manning of the additional FAST Platoons, the Marine Corps will close the all Marine Detachments (MarDets) assigned to aircraft carriers. MarDets have provided security support for aircraft carriers afloat; but have recently been assigned ashore because of increasing threats. MarDet Marines are not as prepared as FAST Marines to respond to these missions due to the limited ability to train while afloat.

Marine Corps Position

Deployed FAST Platoons will provide a significant enhancement to the force protection capabilities of the Fleet CINCs. The Marine Corps remains committed to supporting Naval Security as we prepare to face security challenges of the 21st Century.

Technology Assessment and Development

Discussion

The Marine Corps maintains a robust and focused Science and Technology (S&T) Program to assess and develop the entire spectrum of technologies that provide and enhance maneuver, firepower, Command and Control (C2), logistics, training, and education. An objective of the S&T program is to harness the technology needed to provide the MARFORs with the capabilities to perform their specified and implied missions assigned by law. The end product can then be successfully fielded to meet the requirements of the Combat Development System (CDS).

The process for determining the Marine Corps S&T Investment Strategy is integrated with the CDS. The objectives of this strategy are driven by the S&T Roundtable process. This process brings together in one forum the operational users and organizations that are vital to the development of technology. The end product of the Roundtable process is a collection of prioritized capability deficiencies and requirements.

The Marine Corps S&T program is composed of two elements, the Applied Research element and the Advanced Technology Development (ATD) element. The Applied Research element includes all efforts short of formal development programs. These efforts are directed toward the solution of specific military problems. Their objectives are to demonstrate feasibility, develop new technology needed for future systems, and enable improvements of existing systems to meet known and projected threats for the next decade. The ATD effort provides a process by which the products of research and development can be transitioned to useful applications. Additionally, the ATD process helps to define operational requirements; reduces risk; identifies options, costs, and worth; achieves user developer consensus; and defines operational utility. It also streamlines the Milestone I decision and, in some cases, may transition directly to a combined Milestone I/II decision. Both elements support the warfighting experimental process of the MCWL.

Marine Corps Position

The Marine Corps will continue to conduct its Roundtable to validate S&T requirements. This forum will identify technologies, integrate program feedback from the MARFORs, MCCDC, MCWL, OPNAV, ONR, and HQMC and leverage ongoing programs in other services and agencies. This will allow the Corps to apply scarce resources to either develop or adapt technologies, or do both, for the Marines of tomorrow.

Modeling and Simulation

Discussion

The Marine Corps is aggressively pursuing simulations, simulators, and advanced training devices and technologies to increase Marine Corps Total Force operational and training effectiveness.

The Marine Corps Modeling and Simulation (M&S) Master Plan (including the Marine Corps Aviation Simulation Master Plan) provides the strategic direction for M&S for ground and air combat simulation in the form of end-states to be achieved by the year 2010. The M&S investment strategy has surveyed the critical technologies and assessed priorities and timeframes. Based on the strategy outlined in these guidance documents, the Marine Corps has built a foundation for M&S through 2003.

To ensure our investment complements and builds upon DoD efforts, the Marine Corps is an active participant in Joint Staff and OSD development and implementation of M&S technologies and capabilities. Our investment strategy is founded upon the joint development effort being coordinated through the Defense Modeling and Simulation Office (DMSO).

The Marine Corps is fully engaged in joint programs such as the Joint Simulation System (JSIMS), the Joint Warfare System (JWARS), and the Joint Modeling and Simulation System (JMASS).

Marine Corps Position

The Marine Corps is transitioning its training, operations, analysis, and acquisition technologies toward interoperability with the joint M&S environment. Implementation will require major Service and DoD investment. A significant portion of our FY98 investment is being made toward the development of Marine Corps-unique capabilities within the JSIMS effort. Our continued confidence to invest in M&S efforts is ensured by joint development with DoD, industry, academia, and our allies.

Precision Logistics

Discussion

Logistics is the science of planning and carrying out the movement and maintenance of forces. Logistics provides the resources of combat power and limits what we can do on the battlefield. The goal of every logistician is to expand those limits. Precision Logistics seeks to expand or stretch these limits.

Precision Logistics is a concept that supports the use of better business practices in order to reduce costs, increase efficiency, and improve support to the warfighter. It impacts decisions at the tactical, operational, and strategic levels of war. Our capstone operational concept, OMFTS, and emerging supporting concepts such as Sea-Based Logistics promote the attitude of fighting smartly and demand an approach of smart support. Our shrinking DoD budget also demands change. Modernization programs and procurement are struggling as they suffer from being the bill payers for operational requirements.

Marines, military and civilian, have aggressively taken on the challenge of providing smarter/better logistics support. Many successful initiatives are currently working to reduce logistics response time, reduce inventories, decrease materiel costs, and increase equipment readiness. For example, our Prime Vendor initiatives represent a fundamental management philosophy change. We are shifting from a philosophy of materiel management to one of materiel support management. We have moved much of our medical, subsistence, and battery inventories to commercial contractor management to reduce cost.

Currently, the focus of Precision Logistics is order ship time (OST) and repair cycle time (RCT) reporting. Though accurate knowledge of these processes is required for Precision Logistics improvements, the data in and of itself will not advance the Precision Logistics cause unless it is used to improve logistics processes. It is assumed that reductions in OST will result in reductions in inventory level and in RCT which will improve readiness.

Through these and other initiatives, our operating forces and supporting establishment are successfully meeting the challenge to do logistics smarter. A revolution has begun that will dramatically change and improve the way we provide logistics support to the warfighter.

Marine Corps Position

The Marine Corps expects to reap great rewards from implementation of Precision Logistics initiatives.

Marine Corps Total Force

Discussion

Our Nation has always looked to the Marine Corps to provide a flexible and dynamic expeditionary force-in-readiness. Using our Total Force Concept by employing a seamless combination of active, reserve, retirees, and civilians, we are able to achieve success both in war and support of national policy in peace.

Both Marine Corps size and the manning of operational forces are directly related to our ability to meet the demands of National Military Strategy and to support CINC requirements for forward presence and peace-time engagement. Using the QDR as an opportunity for self-examination of our roles, missions, and capabilities, the Marine Corps top leadership focused on how best to position ourselves for the challenges of the 21st Century. Active duty and Reserve force structure was reviewed by separate groups, however, in keeping with the Marine Corps Total Force philosophy, those groups worked together hand-in-hand. The major focus of effort was to identify and make recommendations to reallocate Marine Corps structure which no longer contributes significantly to our warfighting capability. This effort will help achieve a 90 percent manning of the Fleet Marine Force and supporting establishment which for years have been operating below targeted manning levels as the Corps struggled to balance structure against available Marines. Some of these changes will be made in the near term, however, others will require considerably more planning and coordination before implementation. As a result of the force structure review, the Marine Corps will eventually reduce its active component to about 172,200 and the reserve component to about 40,018 personnel by 1999. By capitalizing on efficiencies, our new structure will allow us to continue to meet our security requirements without resorting to unreasonable deployment tempo in peacetime.

A manpower intensive organization, the Marine Corps continues to believe that the individual Marine is our most effective weapons system, and that is where we invest almost 62 percent of our annual budget. Operating with just 5 percent of the DoD budget, we continue to provide 12 percent of our Nation's military personnel. We do this with the highest ratio of combatants to combat service support personnel anywhere in the DoD. Our emphasis on robust operating forces and lean support force is visible both in our active and reserve components and our officer-to-enlisted and military-to-civilian ratios.

Our force is young and our grade structure is lean. With one officer for every 8.7 enlisted, the Marine Corps has the lowest ratio of all services. Over 68 percent of our enlisted force is the grade of Corporal or

below, and the average age is 25. About 68 percent of our officers are Captains and below with an average age of 33. These factors provide for a significantly less expensive force and allow our Marines to exercise more responsibility and leadership at a younger age. We continue to recruit the finest our Nation has to offer. Over 96 percent of our enlisted recruits are high school graduates and more than 66 percent score above the national average on the Armed Forces Qualification Test.

The Marine Corps Reserve continues to play a vital role in our Total Force Concept by providing trained and qualified units and individuals to be available for active duty in times of war, national emergencies, and other times as national security may require. The Marine Corps continues to integrate both reserve component training and professional military education with that of the active component. During FY97, Marine Reservists worked and trained alongside their Active counterparts in numerous operations and exercises including: **Baltic Challenge, Joint Guard, Cobra Gold, Kernal Blitz, Tandem Thrust, Foal Eagle and ULCHI Focus Lens**. Additionally, during the time when joint requirements caused a vacancy in the 3rd Marine Division Commanding General's position, a Reserve General officer was activated to fill the vacancy. The 3rd Marine Division never missed a beat. Across the spectrum of command and conflict, the Marine Corps Reserve effectively augments and reinforces the Active Component, creating a Total Force that is most ready when the Nation is least ready.

The Total Force Concept includes the capability to call upon a mobilization population of 25,000 retired Marines to fill more than 2,300 preassigned billets throughout the CONUS bases and stations. The experience, skills, and dedication to Corps and country can be counted on in case of national crises.

Our civilian personnel are employed in a wide variety of professional, technical, trade, and administrative functions. These "civilian Marines" provide an essential continuity in their functional areas and are a crucial component of the Marine Corps Total Force. With a population of just 18,000, the leanest in DoD, their manning of the supporting establishment allows Marines to fill billets in operational units thus enhancing training, readiness and sustainability.

Marine Corps Position

The Marine Corps has built an efficient Total Force. Maintaining our expeditionary readiness is dependent on high quality people, including both active and reserve Marines, as well as our civilian personnel. These individuals are the cornerstone of our Corps. Their training, leadership, and quality of life will continue to be of the utmost importance.

Marine Corps Infrastructure

Discussion

The Marine Corps infrastructure consists of 17 major bases and stations in the United States and Japan. In keeping with our expeditionary nature, these installations are strategically located near air and sea ports of embarkation, and are serviced by major truck routes and railheads, to allow for the rapid and efficient movement of Marines and material.

Infrastructure development planning is designed to provide facilities for the efficient training of our air/ground combat teams while minimizing excess or redundant capacities. The obvious advantages to a lean infrastructure are efficiency and cost-effectiveness. Challenges arise in providing and maintaining infrastructure that can meet changing mission requirements in the face of increasing external pressures and declining fiscal and manpower resources. These challenges include:

Environmental Compliance. Our Nation has crafted a strong environmental code of conduct, structured on a wide range of Federal, state, and local laws and strengthened through increased regulatory agency scrutiny and enforcement. Due to the nature of the Marine Corps mission, these requirements present significant challenges to us. Through inspired leadership at all levels, hard work, Marine tenacity, and our approach of viewing environmental requirements as a way of doing business, we have taken significant strides towards achieving our ultimate goal of strict compliance with all applicable environmental requirements while performing our mission. Today, Marines at all levels contribute to environmental goals by simply performing their jobs and being aware of potential environmental impacts. In this era of declining resources, our next challenge is to continue our environmental progress and protect our ability to train and operate while reducing overall costs. Pollution prevention and natural resource management are strategies being pursued to achieve goals.

Encroachment Control. Once located in remote areas, many of our installations are now surrounded by urban, industrial, residential and mining development. This growth of the civil sector is often accompanied by pressure for access to our resources or demands to curtail our operations to make them more compatible with surrounding land uses. Additionally, regulatory requirements such as endangered species protection continue to erode unlimited access to areas needed for training. We maintain an aggressive encroachment control program, which has resulted in win-win solutions to meet these demands while not

degrading the mission effectiveness of our installations. Encroachment takes many forms and requires constant vigilance to ensure the continued viability of our installations and access to our training ranges.

Recapitalization. Marine Corps 1997 U.S. and Japanese readiness infrastructure investment totals more than \$25 billion. Routine maintenance and repair protect this investment through its life cycle, but eventually facilities must be recapitalized. Recapitalization of an infrastructure investment of this magnitude once every 100 years would necessitate a Military Construction, Navy (MCON), and Japanese Facilities Investment program (JFIP) funding stream of \$250 million annually. This is not achievable within current or projected budgets. To offset this deficit, we are aggressively pursuing several initiatives to downsize facilities at our bases and stations. We must optimize our infrastructure usage by matching requirements to assets, no more -- no less. Computerized master planning is a viable resource in this regard. We are ensuring maximum use of our best infrastructure and reducing our inventory by demolishing our least energy efficient and most maintenance intensive facilities. In addition, we are examining the ways we do business to reduce the need for facilities to support the operating forces; such as, Prime Vendor Delivery of goods instead of maintaining a warehouse of material. We are looking to other services, agencies, and the commercial sector to provide needed facilities. Finally, we are using new legislative tools, which provide greater access to public/private ventures, to reduce our requirement for facilities.

Base Operating Support (BOS). Military readiness requires an efficient and well managed infrastructure with quality facilities and high quality of life features. In addition to capital improvements, we must invest in their long term operation, maintenance, and repair. Failing to provide adequate resources will result in an eventual degradation of quality of life, operations, and mission accomplishment. Our limited funding for BOS must be balanced to keep the backlog of maintenance and repair from growing, comply with environmental requirements, pursue aggressive energy savings programs, and pay for required services. These are the costs associated with responsible ownership. We are working to meet these challenges through a variety of means, including technological and business process changes to increase productivity. We are also exploring new ways to outsource and finance facility requirements, but our BOS programs require continued visibility and support throughout the budget process.

Civilian Manpower. Installation management requires a diverse staff possessing skills ranging from the electrical and plumbing trades to

professionals trained in environmental science and law. We have actively pursued more efficient business practices, including outsourcing various functions and the use of low maintenance technologies. This is evidenced by the fact the Marine Corps has the lowest ratio of civilian to military employees within DoD. We continue to examine this area for other efficiencies. Care must be exercised, however, to ensure that reducing civilian personnel does not impact our ability to provide a sufficiently skilled work force to adequately maintain our infrastructure. Support at all levels is required as we analyze this invaluable asset.

Base Realignment and Closure. The limited size and lack of redundancy within our supporting establishment present certain advantages and disadvantages. The efficiencies associated with a small physical plant strategically located in support of our air/ground teams are truly beneficial. During this period of force and base structure reductions, however, finding the means to further reduce infrastructure capacity, while providing adequate facilities to meet the needs and maintain the integrity of our MAGTF organizations, is difficult. Decisions made during 1995 as part of the last round of base realignments and closures provided the infrastructure blueprint for the Marine Corps into the next century. Implementing these decisions is requiring significant up-front costs to achieve long-term economies. New technologies, changes in doctrine and training, a greater focus on jointness, and the fielding of new equipment necessitate our continual assessment of capacity requirements and resultant planning for change. Effecting these changes will require the continued commitment at all levels within the DoD and Congress.

Quality of Life. We are a people intensive service. A supporting establishment that helps attract and retain our outstanding Marines and Sailors requires a commitment to their quality of life by providing housing, recreational amenities, child care facilities, family services, community support centers, and more. We have significant shortages of adequate housing for both bachelor and married service members. Our Bachelor Housing Campaign Plan proposes aggressive strategies for building new barracks and quickly revitalizing barracks that should be retained. Our Family Housing Campaign Plan is a broad based approach to maintaining, repairing and improving our core family housing inventory, and reducing housing deficits in high cost areas through implementing traditional and creative financing mechanisms. In addition to housing, a commitment to excellent morale, welfare, and recreation (MWR) programs will be instrumental in recruiting and retaining our Marines. We will maintain this commitment to quality of life infrastructure improvements through the collective leadership skills and managerial abilities resident in the operating forces and the supporting

establishment. This commitment to our people will result in improved readiness and ensure an excellent supporting establishment for future generations of Marines.



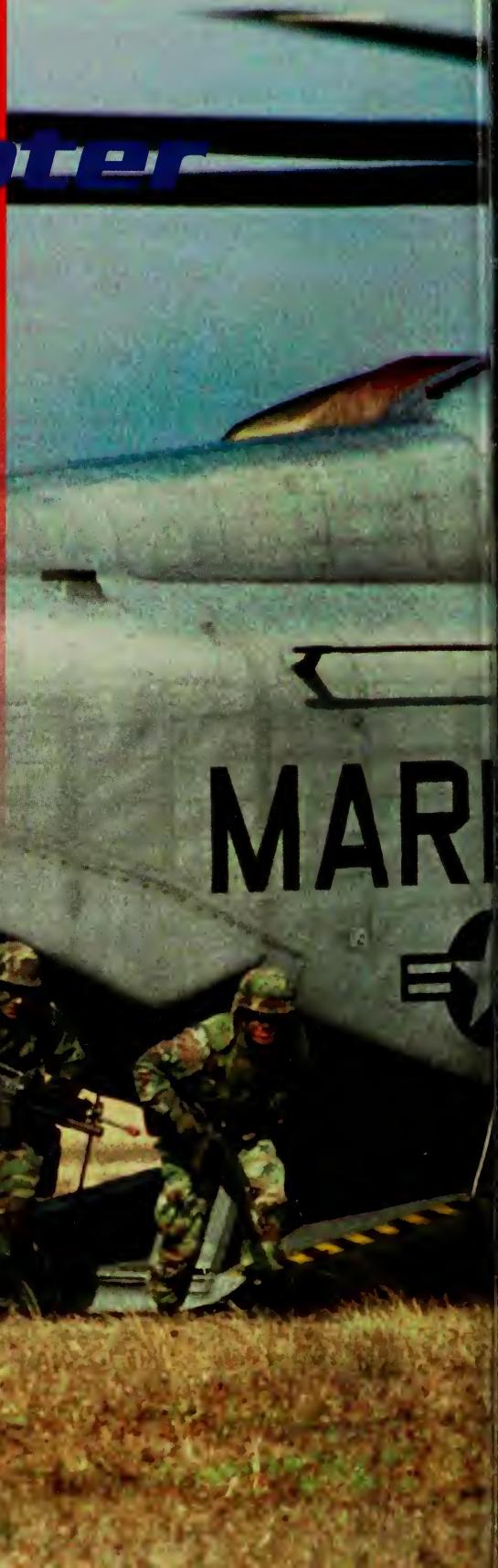
Marine Corps Position

We have a long range plan and specific goals to provide an economical infrastructure. Our goal is to minimize redundancy and improve our training capabilities while providing the necessary quality of life features and environmental stewardship of our resources. Our planning objectives are manifested in our vision of an infrastructure unparalleled in capability and efficiency to support America's expeditionary force-in-readiness.

3 Chapter

Current Operations

Ultimately, the National Military Strategy demand for engagement through forward presence and crisis response will place a premium on Marine and Navy forces. Forward operating naval expeditionary forces are a highly flexible, cost-effective means of maintaining global U.S. presence. Relatively free of overflight limitations and much less dependent on extensive basing of infrastructure, these forces can exert significant influence. Their forward positioning, mobility, and agility to assume a variety of alert postures make them an ideal instrument for crisis response. They are particularly effective during the early stages of a crisis and can assume whatever type presence diplomacy may require for extended period of time. The Navy/Marine Corps team provides a tremendous political and military capability from peacetime presence to conflict resolution.

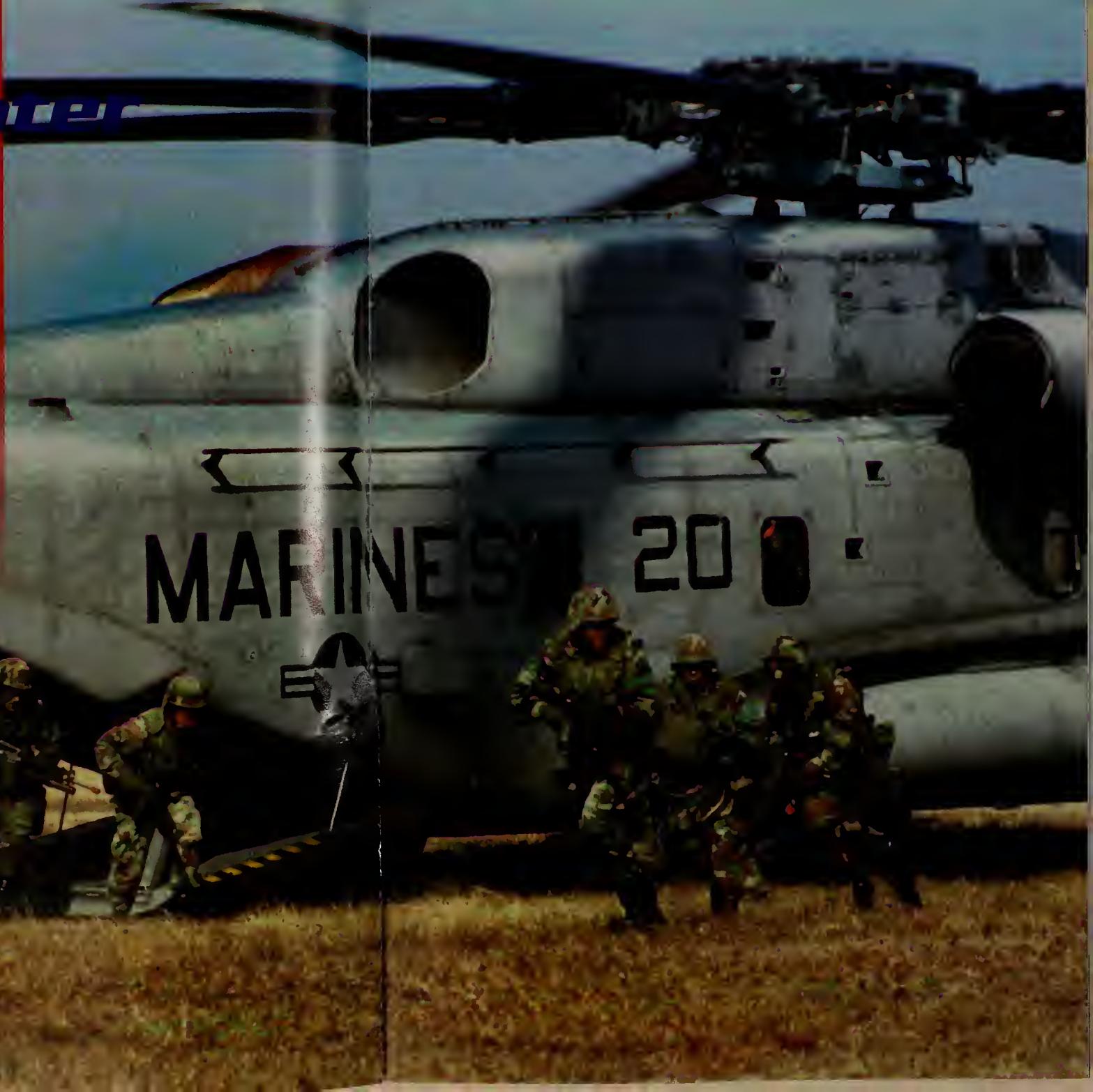




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Current Operations

During 1997, the Navy-Marine Corps team was forward deployed, at the tip of the Nation's strategic spear supporting our National Security Strategy across the spectrum of conflict. As the National Command Authorities' and the CINC's contingency force of choice, the Navy-Marine Corps team provided a rheostat of capabilities: as nation builders in Haiti, peacekeepers in Bosnia, and in a more conventional role as ever vigilant deterrents to Iraqi aggression. The versatility and responsiveness of naval expeditionary forces as a forward deployed presence was repeatedly demonstrated by the execution or staging for the execution of Noncombatant Evacuation Operations (NEOs) in West Africa, as well as Albania and Cambodia. The Navy-Marine Corps team continues to prove itself to be the foundation for peacetime forward presence and overseas crises response. The capabilities inherent in naval expeditionary forces continued to be in high demand, the force of choice for today's CINC requirements as well as being uniquely suited for the strategic environment of the 21st Century.



Exercises

Participation in realistic, worldwide exercises -- whether Service, joint, or combined -- contributes to the Marine Corps remaining a ready, relevant, and capable force. Essential Service Exercises -- such as Combined Arms Exercises (CAX) in Twenty-nine Palms, California; Mountain Warfare Training Center (MWTC) courses in Bridgeport,



California; Weapons and Tactics Instructor (WTI) courses in Yuma, Arizona; and Marine Expeditionary Unit (Special Operations Capable) (MEU(SOC)) workups in the littorals of the east and west coasts of the United States and in Okinawa, Japan -- develop and hone individual, unit, and joint operational skills.

Through joint and combined exercises -- such as *Roving Sands* in Fort Bliss, Texas; *Eager Mace* in Kuwait; *Baltic Challenge* in Paldiski, Estonia; *Tafakula* in Tongatapu, Tonga; and *New Horizon* in Haiti and the amphibious training assistance provided by COMMARFORLANT's annual UNITAS deployment to Central and South America and COMFORPAC's equivalent training deployment, CARAT to Micronesia

and South East Asian states -- the Marine Corps improves its ability to rapidly project forces globally, train/assist our allies, and provides highly trained, interoperable forces to the geographical combatant commanders.



During FY97, Marines participated in over two hundred Service, joint, and combined exercises. These exercises are categorized as live fire, field training, command post, or computer-assisted war-games, and vary in scope from a reinforced platoon (approximately fifty troops) to a Marine Expeditionary Force, Forward (MEF(Fwd)), in excess of two thousand troops. In addition to the invaluable training opportunities resident in these diverse Service, joint, and combined exercises, they revalidate the relevance, readiness, and capabilities of Marine forces to the theater CINC's.

Counterdrug Operations

During 1997, the Marine Corps continued to provide assistance to the Nation's "counterdrug effort". Throughout the year, Marines participated in 51 counterdrug (CD) missions in support of Joint Task Force Six (JTF-6). These missions were conducted along the U. S. Southwest border, within the Nation's national forests, and within several major cities identified as High Intensity Drug Trafficking Areas (HIDTA's). Of these, 50 percent were executed by Marine Reservists from the MARFORRES Team. Individual Marines and units assigned to these CD missions

perform a supporting role to both local and federal law enforcement agencies who are responsible for the investigation of drug trafficking, apprehensions and/or arrests of suspected traffickers.

Typical Marine support missions have included: listening and observation posts, small construction engineer projects, vehicle cargo inspections, as well as, linguist, intelligence analysis, ground based radar and aviation support.

The Marine Corps continues to be proactive in supporting the efforts of the Commander in Chief, U. S. Southern Command (USCINCSOUTH) to deny illegal drug traffic into the U. S. from Latin American sources. The Marine Corps provides Mobile Training Teams (MTTs), Extended Training Service Specialists (ETS) and Deployments for Training (DFTS) that assist host nation military organizations and law enforcement agencies training for counterdrug missions. During 1997, the Marine Corps deployed two Riverine Training Teams (RTTs) to Peru and one to Colombia. Riverine training was conducted with the Colombian Marine Corps, the Peruvian Navy and Marine Corps, and the Peruvian National Police. This training covers the logistics and tactics involved in the operation of riverine craft on inland waterways enabling partner nations to better interdict illegal drug smuggling.

Military Support to Civil Authority

The Marine Corps remains heavily involved in preparing for and answering the call to the citizens of our Nation during periods of domestic emergency. Historically, DoD has increased their reliance on its "uniformed citizens" to support civil authorities when needed. In that vein, the Marine Corps Chemical/Biological Incident Response Force (CBIRF) has become the force of choice in planning for Weapons of Mass Destruction (WMD) incident response. This was demonstrated by CBIRF support to the Interagency Task Force for the Summit of Eight Economic Conference in Denver, Colorado this past year. Marines nation-wide stand prepared to respond to calls for domestic disaster response assistance. Marine assistance during the blizzards in the Dakota's and the flooding in the Central and Western United States during the late winter and spring of 1997 typifies our readiness, willingness and capability to support to our civil authorities.

CY97 USMC Operations Matrix

DATE	OPERATIONS	DESCRIPTION	FORCES	LOCATION
Aug 92 - Present	SOUTHERN WATCH	No-fly zone (NFZ) enforcement below the 33rd parallel over southern Iraq	1st and 2D MAW units	Arabian Gulf
Apr 93 - Dec 95	DENY FLIGHT transitioned to DECISIVE EDGE	NFZ enforcement over Bosnia and air support to SFOR	2D MAW VMAQ and VMFA (AW) Squadrons	Bosnia/Herzegovina
Dec 95 - Dec 96	transitioned to DELIBERATE GUARD			
Dec 96 - Present	SHARP GUARD transitioned to DECISIVE ENHANCEMENT	Combined maritime operations to interdict illegal weapons and contraband headed for Bosnia	22D, 24th, 26th MEU(SOC)	Adriatic Sea
Jun 92 - Dec 95	transitioned to DETERMINED GUARD			
Dec 95 - Dec 96				
Dec 96 - Present				
Jun-Dec 97	NORTHERN WATCH	NFZ enforcement above the 36th parallel over northern Iraq and maintain coalition surveillance and monitoring of Iraqi military and government forces in compliance with UN security Council Resolutions in northern Iraq	2D MAW VMAQ Squadrons	Incirlik, Turkey
Apr 96-Present	US SUPPORT GROUP-HAITI	Security, Counter Intel and Engineer Operations in support of US Support Group-Haiti	Dets II MEF and 2D MAW	Haiti
Oct 95-Present	FULL ACCOUNTING	Support of National efforts for the accounting of POWs/MIAs from the Vietnam War	Dets from 1st MAW 3D FSSG	Southeast Asia
Dec 95-Dec 96	JOINT ENDEAVOR transitioned to JOINT GUARD	Implementation of military tasks of Peace Agreement under authority of a UN Security Council Resolution (Chapter VII)	22D, 24th, 26th MEU(SOC), Marine Corps Security Forces, I and II MEF UAV units	Bosnia/Herzegovina
Dec 96-Present				
Jul 96-Present	NAVCENT Security Enhancement	Security operations at designated naval facilities in Bahrain and reinforcement of security units at the Administrative Support Facility, Bahrain	Marine Corps Security Forces/FAST	Bahrain

DATE	OPERATIONS	DESCRIPTION	FORCES	LOCATION
Jul 96-Present	DESERT FOCUS	Conducting CI Force protection operations in support of CJTF-SWA	Det I MEF	Southwest Asia
Sep96-Mar 97	PACIFIC HAVEN	Security operations in support of humanitarian assistance for relocation of Kurdish foreign service nationals	Det MARFORPAC, SPMAGTF from III MEF	Guam
Sep 96-Jun 97	LASER STRIKE	Counterdrug radar and communications support	Det, MACG-28	South America
Jan 97	DOMS SUPPORT SAN JOACHINE RIVER	Sandbag filling for levy reinforcement	Co B, 4th LSB	Lathrop, CA
Feb 97	PRESENT HAVEN	Guyanese migrant Security	Dets form II MEF	Guantanamo Bay, Cuba
Mar-Jul 97	SILVER WAKE	Noncombatant Evacuation Operation (NEO) to evacuate American citizens and third country nationals to safehavens from Tirana	26th MEU(SOC) and Composite Co MCSF	Tirana, Albania
Mar-Jun 97	GUARDIAN RETRIEVAL	Preparations and planning for possible NEO to evacuate American citizens and third country nationals from Kinshasa, Zaire (<i>not executed</i>)	26th MEU(SOC) USS Nassau and 22D (MEU(SOC) aboard USS Kearsarge	Brazzaville, Congo
May-Jun 97	NOBLE OBELISK	NEO to evacuate American citizens and third country nationals from Freetown, Sierra Leone	22D MEU(SOC) aboard USS Kearsage	Freetown, Sierra Leone
Jul 97	BEVEL EDGE	Preparations and planning for possible NEO to evacuate American citizens and third country nationals from Phnom Penh, Cambodia (<i>not executed</i>)	Elements III MEF	Utapao, Thailand
Nov 97	SILENT ASSURANCE	Military operations to enhance security for US citizens/facilities during the Middle East/North Africa (MENA) Economic conference	13th MEU (SOC) Peleliu ARG	Doha, Qatar



Chapter 4

Major Acquisition Programs

This chapter provides background information regarding key programs being pursued by the Marine Corps and the Navy to permit execution of the "Forward... From the Sea" naval warfare concept. These programs aggressively exploit advances in technology to improve readiness; enhance intelligence and information processing; increase the speed, mobility, supporting firepower, and logistics support of sea-based expeditionary forces; and significantly minimize potential casualties during future operations. This chapter is divided into five sections. The first four sections correspond to programs integral to each of the major component elements of the MAGTF. The final section addresses general MAGTF support programs.



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Command Element Programs

The Command Element (CE) of the MAGTF headquarters is task organized to provide the command, control, communications, computers, intelligence, and interoperability (C4I2) necessary for the effective planning and execution of Marine Corps power projection capabilities.

This section provides basic descriptions of Marine Corps C4I programs/systems under development or scheduled for procurement or fielding during FY98 and FY99. The system descriptions are organized according to the primary command and control (C2) functional area they support:

- ❑ **Maneuver.** Maneuver systems function to pull and fuse information from other C2 functional areas. They provide the commander an integrated representation of the battlespace or area of operations.
- ❑ **Intelligence.** Intelligence systems support the timely planning, collection, processing, production, and dissemination of all-source intelligence. Additionally, these systems support the effective employment of reconnaissance, surveillance, and target acquisition (RSTA) resources.
- ❑ **Air Operations.** Air operation systems are used to plan and coordinate Navy and Marine Corps air combat operations and interface with Joint/Combined forces' air operation systems. These systems also interface directly with non-aviation fire-support systems.
- ❑ **Fire-Support.** Fire-support systems integrate the artillery and air-support within the MAGTF and naval gunfire for joint and combined fire-support.
- ❑ **Combat Service Support.** Combat service support systems ensure effective logistics planning and operations. This includes all logistics functions that support the deployment, employment, and reconstitution of forces.
- ❑ **Command and Control Warfare.** Command and control warfare systems coordinate C2 and protection actions in support of C2 warfare operations.

MAGTF Command, Control, Communications, Computer, and Intelligence (C4I)

MAGTF C4I is the overall concept for the migration and integration of tactical data systems, communication systems, and information security systems in the Marine Corps. The goal of MAGTF C4I is to provide commanders with a common tactical picture and the means to manage the increasingly complex modern battlefield. MAGTF C4I will provide the ability to send, receive, process, filter, store, and display data to aid in tactical decision making. MAGTF C4I will employ the same types of common hardware and software whether ashore or afloat or while in garrison or in the field.

By capitalizing on the existing core services of the Unified Build (UB)/Defense Information Infrastructure (DII), Common Operating Environment (COE), the Marine Corps intends to re-engineer numerous systems across the mission areas of land operations, intelligence/dissemination, airspace management/air operations, fire support, combat service support, and tactical warfare simulation. The ongoing MAGTF C4I migration effort is consistent with, and supportive of, the Assistant Secretary of Defense (ASD) for C3I mandate to designate DoD standard migration systems. Individual systems will be merged so that information can be shared via MAGTF C4I. An additional goal is to reduce the acquisition schedule and cost of initiatives associated with MAGTF C4I.

The development plan for MAGTF C4I envisions the creation of an integrated migration strategy which requires that software functionality of migrating systems be incorporated into the MAGTF software baseline (MSBL). Successive versions of MSBL will provide increased functionality as the threat changes and doctrine and requirements evolve.

Global Command and Control System (GCCS)

DESCRIPTION

GCCS is a flexible, evolutionary, interoperable, joint C4I system which supports the DoD C4I for the Warrior (C4IFTW) migration strategy. GCCS establishes and presents a fused, real-time picture of the battlespace to the warfighter for all automated C2 operations. The current focus is to improve the functionality of the initial Joint Operational Planning and Execution System (JOPES) application. With the FY98 Release 3.0, GCCS is expanding to include additional required capabilities, e.g. Air Tasking Order (ATO), intelligence and imagery information, status of readiness and training data, logistics, and enhanced message handling. Also, with Release 3.0, the GCCS will migrate to the Joint DII COE. The DII COE provides common support services required to include database management, message handling, correlation, graphics, and mapping. Ultimately, GCCS will connect Joint and upper echelon Service systems down to the battalion level.

PROCUREMENT PROFILE:

Quantity: Upgrades GCCS Suites

FY98

FY99

221

221

Upgrades GCCS-T Suites

20

20

OPERATIONAL IMPACT

GCCS encompasses the policies, procedures, personnel, automated information processing systems, common communication paths and switches necessary to plan, deploy, sustain, and employ armed forces. GCCS provides Joint operational planning and execution capabilities and facilitates the deployment and redeployment of Marine Corps forces.

PROGRAM STATUS

DASD/(C3) provides functional and acquisition oversight. The Joint Staff provides day-to-day and technical oversight. Defense Information Systems Agency (DISA) provides program management. The Marine Corps procured an initial quantity of 63 application servers for fielding to 29 Initial Operational Capability (IOC) sites. Procurement of equipment to support an additional 158 workstation/servers at an additional 26 Marine Corps GCCS sites and to ensure a deployable GCCS capability was completed during the 4th Quarter FY97. Hardware and software purchases will occur through FY98. GCCS Release 3.0 improves current automated C2 system performance, increases warfighting capabilities, and minimizes life cycle operations.

DEVELOPER/MANUFACTURER

Software - DISA

Hardware - Commercial Off-The-Shelf

Tactical Combat Operations (TCO) System

DESCRIPTION

The TCO system, as an operations component of the MAGTF software baseline (MSBL), will automate the MAGTF's ability to receive, fuse, select, and display information from many sources, and disseminate selected information throughout the battlefield. TCO system attributes include:

- automated message processing*
- mission planning development and dissemination of operations orders and overlays*
- display of current friendly/enemy situations*
- display of tactical control measures*
- interfaces with local and wide area networks (LANs/WANs).*

The Joint Maritime Command Information System, Unified Build (JMCIS UB) forms the core software for the TCO system, allowing the MAGTF to share battlefield information with the Navy and Coast Guard. The TCO system will transition to the DII COE in FY98, providing seamless interoperability with GCCS and other DII COE compliant systems.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	180	9

OPERATIONAL IMPACT

TCO will link the operations section of all MAGTF units of battalion/squadron size and larger. Marine forces embarked aboard Navy ships will "plug in" to the Naval Tactical Command System-Afloat. When ashore, MAGTF C4I will allow interoperability with Joint forces over internal and external communication networks.

PROGRAM STATUS

A Production, Fielding/Deployment (Milestone III) decision was approved in 1995 and IOC was achieved in 1996, with 334 systems fielded down to the regimental/group level. Full Operational Capability (FOC) is scheduled for the 1st Quarter FY99.

DEVELOPER/MANUFACTURER

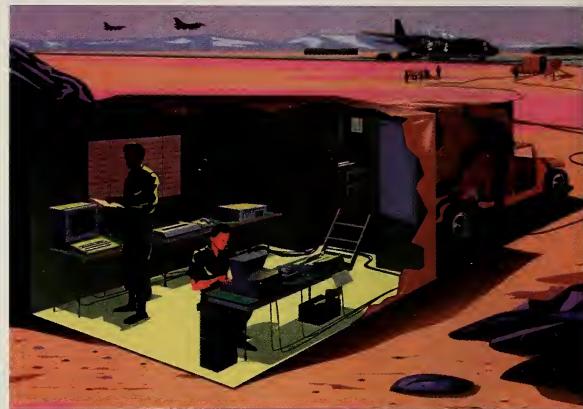
Integration - SPAWAR Systems Center, Charleston, SC

Hardware - Hewlett Packard

Digital Technical Control (DTC)

DESCRIPTION

The DTC facilitates the installation, operation, restoration, and management of digital trunk groups consisting of multiplexed and individual circuits. It provides the primary interface between subscriber systems and LANs with the long-haul multi-channel transmission systems to transport voice, message, data, and imagery traffic. It can drop and insert digital circuits into multiplexed groups; provide a source of stable timing to connected equipment or conditioned circuits; and perform analog/digital, 2-wire/4-wire, and signaling conversions. It contains the monitoring, testing, and patching equipment required by technical controllers to troubleshoot and restore faulty circuits and links.



PROCUREMENT PROFILE:

Quantity:

FY98

6

FY99

9

OPERATIONAL IMPACT

The DTC integrates the communications assets of a node into an efficient system that provides the commander seamless communications while making efficient use of limited bandwidth and equipment. The DTC acts as a central management facility that allows the MAGTF commander to install, operate, and maintain the supporting C4I system. The DTC, along with the Unit Level Circuit Switch, TDN, Tactical Communications Central, and various multi-channel radios, form the backbone of the Marine Corps digital communications network.

PROGRAM STATUS

The program is in the EMD phase. Milestone I/II occurred in 1995. Operational Test was conducted at Camp Pendleton, CA in September 1997. A Milestone III decision is anticipated in the 2nd Quarter FY98 with a Production Contract award to follow.

DEVELOPER/MANUFACTURER

EMD - Tobyhanna Army Depot, PA

Production - TBD

Tactical Data Network (TDN) System

DESCRIPTION

The TDN system consists of a network of interconnected gateways and servers. These systems and their subscribers are connected by a combination of common-user, long-haul transmission systems, LANs, single channel radios, and the switched telephone network. The TDN system provides basic data transfer and switching services, as well as access to strategic, supporting establishment, Joint, and other Service component tactical data networks. The TDN supports network management capabilities and value-added services such as message handling, directory services, file sharing, facsimile handling, and terminal emulation support. The TDN gateway deployed at the Marine Expeditionary Force (MEF) and other major subordinate commands will provide access to the Nonsecure Internet Protocol Router Network (NIPRNET), Secret Internet Protocol Router Network (SIPRNET), and other Services' tactical packet switched networks. It will be configured in a High-Mobility, Multi-purpose Wheeled Vehicle (HMMWV) mounted shelter for mobility. The TDN server deployed at the battalion level will be in four man-portable transit cases. The TDN provides MAGTF C4I users the ability to transition from AUTODIN to its mandated replacement system, the Defense Message System (DMS).

PROCUREMENT PROFILE:

Quantity: (Gateways)
(Servers)

FY98

6
120

FY99

12
240

OPERATIONAL IMPACT

The TDN augments the existing MAGTF communications infrastructure to provide an integrated data network for the MAGTF's tactical data systems.

PROGRAM STATUS

The program is in the Engineering and Manufacturing Development (EMD) phase. Milestone 0 was approved in 1994 and Milestone I/II was approved in 1995. A Milestone III decision is scheduled for the 2nd Quarter FY98.

DEVELOPER/MANUFACTURER

Prototypes - Tobyhanna Army Depot, PA

Production - TBD

Intelligence Analysis System (IAS)

DESCRIPTION

The IAS will deploy either as a MEF IAS, in IAS suites, or as single IAS workstations. The MEF IAS serves as the hub of the Marine Air-Ground Intelligence System (MAGIS). It provides intelligence functionality to the echelon-tailored, MAGTF all-source intelligence fusion centers and is compatible with the DII COE. MEF IAS is a shelterized, mobile system with multiple analyst workstations (W/S) in a client-server LAN configuration. IAS suites for intermediate commands* are configured in either a two or a four workstation LAN. Single IAS workstations are for battalion and squadron-sized units.



* *Marine divisions, aircraft wings, infantry regiments, aircraft groups, and MEU(SOC) command elements*

PROCUREMENT PROFILE:

Quantity: **MEF IAS**
IAS Suites
IAS W/S

	FY98	FY99
MEF IAS	5	2
IAS Suites	28	0
IAS W/S	28	0

OPERATIONAL IMPACT

IAS hosts the Secondary Imagery Dissemination System (SIDS) and has provisions for communication links with other intelligence agencies and systems at the national, theater, and tactical levels.

PROGRAM STATUS

The initial IAS suite reached IOC in 1992 and FOC in 1993. The follow-on IAS suite IOC was completed in the 1st Quarter FY97 with FOC scheduled for 2nd Quarter FY98. MEF IAS underwent operational testing in 1996. IOC is scheduled for 2nd Quarter FY98 and FOC in FY00. IAS workstations started their Research and Development (R&D) phase in FY97 and will attain IOC in FY98.

DEVELOPER/MANUFACTURER

MEF IAS - VITRO Corporation, Oxnard, CA
IAS suite - NSWC, Crane, IN
IAS workstation - TBD

MAGTF Secondary Imagery Dissemination System (SIDS)

DESCRIPTION

Using available communications paths, the MAGTF SIDS provides the capability to electronically collect, manipulate, transmit, and receive imagery products throughout the MAGTF, as well as to adjacent, higher, and external commands. MAGTF SIDS will fully comply with the National Imagery Transmission Format (NITF) Version 2.0 and the Tactical Communications Protocol (TACO II).

PROCUREMENT PROFILE:

FY98

FY99

Quantity:

20

0

OPERATIONAL IMPACT

MAGTF SIDS will be hosted on the IAS and in a stand-alone MANPACK configuration. Each configuration will be distributed throughout the MAGTF and will comprise the foundation of the SIDS network. Both allow the user to display, manipulate, annotate, print, transmit, and receive images on a multipurpose intelligence workstation.

PROGRAM STATUS

The IAS-hosted SIDS is presently operating on commercial IAS suites within the seven Marine Expeditionary Units (MEUs). Selection of imagery-quality scanners and printers is complete. Ten Low Rate Initial Production (LRIP) MANPACK SIDS have been purchased, integrated, and fielded. A user evaluation, a follow-on user evaluation, and a procurement decision were conducted in FY97. The IOC and FOC are both scheduled for FY98.



DEVELOPER/MANUFACTURER:

IAS-hosted software - Paragon, Inc.

MANPACK SIDS-hosted software - Paragon, Inc.

MANPACK SIDS-hosted hardware - Alden

Kodak/Nikon, Litton, Panasonic

Marine Corps Common Hardware Suite (MCHS)

Radio Reconnaissance Equipment Program-SIGINT Suite-1 (RREP-SS-1)

DESCRIPTION

The RREP-SS-1 provides radio reconnaissance teams (RRTs) of the Fleet Marine Force (FMF) Radio Battalions with the only enhanced, man-packable SIGINT system. The system consists of low-cost, Non-Developmental Item/Commercial-Off-The-Shelf (NDI/COTS) hardware and software tailored to conduct signals search and exploitation missions in support of the MAGTF commander. RREP-SS-1 enables RRTs to successfully prosecute low level, single channel, unencrypted tactical HF/VHF/UHF signals. The system incorporates modularly-configured, ruggedized components that provides the RRT with the capability to conduct automated signals search/cataloging and radio direction finding, database storage and manipulation, limited analysis, Global Positioning System (GPS) interface, digital audio recording, digital database transfer, and reporting functions.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i> (RREP-SS-1)	18	0
(RREP-SS-2)	0	0

OPERATIONAL IMPACT

The RREP-SS-1 is the second suite of equipment developed under the RREP initiated in 1991. It will, in the 3rd Quarter FY98, replace the currently fielded system, the Radio Reconnaissance Distribution Device (R2D2). With increased capabilities over R2D2, RREP-SS-1 features a reduction in size, weight, cabling, and power requirements. Its modular design enables future technology upgrades without changing the basic operator mission profile and ensuring technical parity with advanced and emerging enemy communications. Each generation of RREP equipment is fielded with a full spare parts block, documentation, training, and warranty/program support for an operational service life of three years.

PROGRAM STATUS

In production, RREP-SS-1 received a Milestone III decision in 1996 to procure and field 18 systems. IOC and FOC will be reached during the 3rd Quarter FY98. RREP-SS-2 received a Milestone 0/I decision in August 1997 and has a scheduled IOC/FOC for FY01.

DEVELOPER/MANUFACTURER

The RREP is an evolutionary and ongoing program. California Microwave, Woodlawn Hills, CA; VISICOM Laboratories, Pensacola, FL; and Radio Reconnaissance Technologies, Stafford, VA are involved with production and R&D efforts.

Technical Control and Analysis Center (TCAC) Product Improvement Program (PIP)

DESCRIPTION

The TCAC PIP consists of a lightweight, multipurpose shelter mounted on a heavy variant of the HMMWV, two Sun/SPARC 20 client workstations, two Sun/SPARC 10 servers, associated peripherals, five radios (one High Frequency (HF), two Very High Frequency (VHF), one Ultra High Frequency (UHF), and one UHF satellite communications (SATCOM)), associated antennas, a TVI tent, and a trailer for ancillary gear towed by the HMMWV. TCAC PIP functions include Signals Intelligence (SIGINT) data analysis, steerage, and management of collection assets, production of SIGINT products, and data and voice communications connectivity to all levels, including national, higher, adjacent, and subordinate. The fielding requirement is for three systems at each of the two Radio Battalions and a single system for the supporting establishment (SE).



PROCUREMENT PROFILE:

FY98

Quantity:

0

FY99

7

OPERATIONAL IMPACT

Compared to the current TCAC system, TCAC PIP will greatly increase the quality and timeliness of the SIGINT products provided to MAGTF commanders, while decreasing the amphibious/airlift requirements for system deployment.

PROGRAM STATUS

Prototype development began in FY91. Several prototype workstations provided since FY92 have successfully supported MEUs and detachments around the globe. The TCAC PIP completed a Battle Lab Assessment test and received a successful production decision in 1996. Additional testing is scheduled for FY98. IOC and FOC are scheduled for FY99.

DEVELOPER/MANUFACTURER

VITRO; BTG, Inc.

Team Portable Collection System (TPCS) Upgrade

DESCRIPTION

The TPCS Upgrade is comprised of critical low-density components, equipment, and software which enhances current TPCS operations. The TPCS Upgrade architecture is flexible and scaleable to rapidly tailor its collection capabilities. The complete system upgrade consists of the COMINT Collection Subsystem (CCS) which is comprised of four intercept/direction finding (DF) outstations, (CCS-OS); an Analysis Subsystem (AS); and a Communication Subsystem (CS). The CCS-OSs are controlled by, and report to, the AS via tactical radio frequency (RF) data links. External communications to the supported MAGTF is via the CS using tactical RF data link. All subsystems may be operated using vehicular, generator, commercial, or battery power sources. The TPCS Upgrade equipment is configured into man-portable loads which can be transported by team personnel for short distances.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity: Phase I</i>	0	11
<i>Phase II</i>	0	0

OPERATIONAL IMPACT

TPCS Upgrade provides the MAGTF with organic capability to exploit advance signal types. The TPCS Upgrade will also increase the current fielded TPCS operational suitability and effectiveness by increasing user friendliness, reducing processing time, reducing size, weight, power, and increasing reliability. The Phase I Upgrade will introduce the Low Probability of Intercept (LPI) exploitation capability and the Phase II Upgrade will introduce cellular and other advance signals exploitation capability. The system's evolutionary acquisition strategy will continue to increase the Radio Battalions' capability to exploit present and future technologies.

PROGRAM STATUS

The Phase I Upgrade entered EMD during FY95 under a Non-Acquisition Category Program Definition Document (NAPDD). TPCS Upgrade was granted a Milestone II in FY97. Phase I is scheduled for streamlined operational test during FY98 and Initial Operational Test and Evaluation (IOT&E) followed by a Milestone III during FY99.

DEVELOPER/MANUFACTURER

Phase I - ARGO Systems, Sunnyvale, CA

Phase II - TBD

Software - BTG, Fairfax, VA; Kathpal, Dunn Loring, VA

Mobile Electronic Warfare Support System (MEWSS) PIP

DESCRIPTION

The MEWSS PIP is an advanced SIGINT/Electronic Warfare (EW) suite integrated into a Marine Corps Light Armored Vehicle (LAV). It provides a mobile SIGINT/EW system capable of operating in a variety of tactical situations. The MEWSS PIP will intercept, conduct DF, and exploit modern enemy communications and battlefield radars. The primary mission subsystems provide intercept, collection, and geo-location across a broad frequency range and against a variety of modern threat communications and non-communications emitters. The MEWSS PIP will provide valuable SIGINT for mission planning, DF information to artillery and air support units, and indications and warnings. The MEWSS PIP incorporates elements of the Army's Intelligence and Electronic Warfare Common Sensor (IEWCS) electronics suite. The MEWSS/IEWCS is a multi-Service development effort by the Marine Corps and the Army.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	2	2

OPERATIONAL IMPACT

The MEWSS PIP is a state-of-the-art force multiplier providing EW capability in a tactical platform. The MEWSS PIP replaces 1970's technology that will provide intercept, DF, jamming, and precision location against a wide array of modern modulation techniques, an expanded frequency range, and against non-communications signals. The MEWSS PIP is completely interoperable with Army IEWCS platforms. This allows cooperative engagement, data sharing, and precision location capabilities between Services.

PROGRAM STATUS

In 1996, the MEWSS PIP completed an Operational Assessment and received an LRIP decision. An IOT&E is scheduled for 3rd Quarter FY98. A Milestone III full-rate production decision is expected in early FY99. IOC is scheduled for 3rd Quarter FY99. MEWSS PIP allows the Marine Corps to field a state-of-the-art EW capability with reduced technical risk at a fraction of the cost of developing a comparable system.

DEVELOPER/MANUFACTURER

Prime - Lockheed Martin Federal Systems, Owego, NY

Subs - Raytheon E-Systems, Richardson, TX

Condor Systems, Santa Clara, CA

Joint Service Imagery Processing System Tactical Exploitation Group (JSIPS TEG)

DESCRIPTION

The JSIPS TEG is a mobile, imagery ground station, configured in three HMMWVs, that supports the MAGTF's tactical imagery exploitation needs. The JSIPS TEG provides the capability to receive, process, store, exploit, and disseminate reports and secondary imagery derived from the Advanced Tactical Airborne Reconnaissance System (ATARS) electro-optical and infrared imagery from the F/A-18D(RC), as well as from theater and national sources such as U-2 aircraft and overhead imagery satellites. The JSIPS TEG can deploy with any MAGTF to provide imagery intelligence (IMINT) for all aspects of operational planning.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	3	0

OPERATIONAL IMPACT

A JSIPS TEG will be fielded to each Force Imagery Interpretation Unit (FIIU) of the MEFs. When fully operational with the JSIPS National System, it will provide the MAGTF or a Joint Task Force (JTF) with the capability to receive, process, and exploit secondary digital imagery from national or theater tactical imagery reconnaissance or secondary imagery systems. The JSIPS TEG will provide the MAGTF with the capability to produce and disseminate imagery derived reports and limited types of digital imagery products.

PROGRAM STATUS

The 2nd FIIU at Cherry Point, NC completed a user evaluation on a prototype JSIPS TEG. IOC for the JSIPS TEG will be achieved in June 1998. FOC (to include the ATARS data link) is scheduled for FY00.

DEVELOPER/MANUFACTURER

Prototype - COMTEC and Vitro, Inc.

Production - GDE Systems

AIR OPERATIONS

Common Aviation Command And Control System (CAC2S)

DESCRIPTION

The CAC2S is a coordinated modernization effort to replace the existing C2 equipment of the Marine Air Command and Control System (MACCS) and provide the Aviation Combat Element (ACE) commander with the necessary hardware, software, equipment, and facilities to effectively command, control, and coordinate air operations. The CAC2S system will support the MACCS missions with a suite of operationally scaleable modules. The CAC2S integrates the functions of aviation C2 into an interoperable naval system which supports OMFTS. The components of the CAC2S are specifically designed to support any operational contingency.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

The CAC2S, in conjunction with Marine Corps organic sensors and weapons systems, supports OMFTS and brings Marine aviation C2 fully on-line with other Joint C2 systems. It will replace C2 systems in the following Marine aviation C2 elements:

- *Tactical Air Command Center (TACC)*
- *Tactical Air Operations Center (TAOC)*
- *Direct Air Support Center (DASC)*
- *Marine Air Traffic Control Detachment (MATCD)*
- *Low Altitude Air Defense Battalion (LAAD Bn)*

PROGRAM STATUS

The CAC2S is currently in Acquisition Phase 0, Concept Exploration. The MNS was signed in 1995 and the ORD was signed on 10 November 1997. An Analysis of Alternatives (AOA) is currently being conducted. IOC and FOC are anticipated in FY04 and FY07, respectively.

DEVELOPER/MANUFACTURER

TBD

Air Defense Communications Platform (ADCP)

DESCRIPTION

The ADCP is a shelterized, HMMWV-based system which contains all the necessary communications and computer equipment to conduct air defense C3 operations on an interim basis until replaced by the CAC2S. A required component of the Marine Corps interim Theater Ballistic Missile Defense (TBMD) system, the ADCP receives, processes, transmits, and forwards critical voice and target data information to required Marine Air Command and Control System (MACCS) agencies and Joint users of the Joint Tactical Information Distribution System (JTIDS) network.



PROCUREMENT PROFILE:

Quantity:

FY98

8

FY99

4

OPERATIONAL IMPACT

The fielding of the ADCP enhances the MAGTF commander's ability to effectively deploy air defense assets. Until CAC2S is fielded, the single configuration HMMWV-based system will meet all interim requirements for receiving and passing cueing to internal and external units engaged in TBMD, tactical ballistic, and cruise missile defense systems.

PROGRAM STATUS

A favorable Milestone I/II decision was rendered during FY95. A favorable Milestone III decision was approved in May 1997. IOC is scheduled for the 3rd Quarter FY98. FOC is scheduled for 4th Quarter FY99.

DEVELOPER/MANUFACTURER

Software - Advanced Programming Concepts

Hardware and Integration - Naval Surface Warfare Center, Crane, IN

Improved Direct Air Support Center (IDASC) PIP

DESCRIPTION

The IDASC PIP will replace the AN/TSQ-155 IDASC and OE-334/TRC Antenna Coupler Group with a High Mobility Downsized (HMD) DASC. The HMD DASC consists of five identical hardware-configurable, HMMWV-mounted Lightweight Multipurpose Shelters (LMS) and associated support equipment. Each shelter contains an internal distributed digital network that interconnects with other HMD DASC shelters or allows a modular increase in communication capability. The shelters are configured in one of two variants. The operations variant provides the operator, via a C3 distribution system (C3DS), with access to radio and telephone communications circuits, a tactical automation capability, and other miscellaneous operational capabilities. The communications variant is selectively populated with radio, cryptographic, and components necessary to interface the MAGTF with Joint level communications agencies.

Each HMD DASC vehicle tows an M-116 trailer that carries a generator and external cables. The operations variant trailer also carries one Quick Erect Shelter. With an ability to populate the internal equipment differently, the modular integration capability provides a wide range of tactical configurations.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	10	0

OPERATIONAL IMPACT

The system allows for increased configuration and employment flexibility and provides with a lightweight, highly mobile, shelterized system capable of delivering flexible and responsive air support C2.

PROGRAM STATUS

The program is being implemented via a three phase evolutionary acquisition strategy:

- *Phase I (IOC): Downsizing, Electromechanical Upgrades, and Automation Core,*
- *Phase II (FOC): Block Upgrades,*
- *Phase III: Out-year Improvements.*

IOC and FOC are scheduled for 3rd and 4th Quarters FY98.

DEVELOPER/MANUFACTURER

Naval Surface Warfare Center, Crane, IN
(Shelter Downsizing, System Integrator)

Tactical Air Operations Center (TAOC)

DESCRIPTION

The TAOC consists of the AN/TYQ-23(V)1 Tactical Air Operations Module (TAOM), AN/TPS-59 and AN/TPS-63 radars, JTIDS, and the Sector Antiair Warfare Facility (SAAWF). The TAOC provides the equipment and organization necessary to plan, direct, and control tactical air operations, and to perform specified airspace management tasks. The TAOC is comprised of several weapon systems that are in different phases of their life cycle.

PROCUREMENT PROFILE:

Quantity: **OCU**
JTIDS

FY98

14
7

FY99

14
7

OPERATIONAL IMPACT

The Operator Console Upgrade (OCU) replaces the existing console and provides a commercial network interface to external networks. The OCU introduces GCCS functionality and a Windows-based man-to-machine interface. JTIDS implementation provides a robust capability with the objective of commonality with the TACC. The TPS-59 radar upgrade enhances existing abilities to detect and track theater ballistic missiles. The interim SAAWF facilitates dissemination of the tactical air picture from the TAOM to the Sector Anti-Air Warfare Coordinator (SAAWC) Battle Staff operator positions. It also facilitates an automatic interface between the Contingency Theater Automated Planning System (CTAPS) and the TAOM database for the air tasking order.

PROGRAM STATUS

During FY96, the contract for the OCU, an Acquisition Category IV(T) Minor Upgrade, was awarded; JTIDS implementation began the EMD phase; and the AN/TPS-59 upgrade began. The interim SAAWF began in 1995. The final SAAWF configuration is in the EMD phase under a joint Air Force/Marine Corps initiative. Preliminary design was reviewed and approved in 1995. The program is named Combat Integration Capability (CIC)/SAAWF. The Marine Corps received prototype CIC/SAAWF software during 1997 for evaluation.

DEVELOPER/MANUFACTURER

OCU - Litton Data Systems

AN-TYQ-JTIDS - Litton Data Systems

AN/TPS-59 Interface - Litton Data Systems

Interim SAAWF - MCTSSA/MCHS

Final SAAWF Prototype - Space Warfare Center, CO

Contingency Theater Automated Planning System (CTAPS)

DESCRIPTION

CTAPS is an Air Force system, mandated for use by the Chairman, Joint Chiefs of Staff for generation, dissemination, and execution of the Air Tasking Order (ATO). The host system resides within the Tactical Air Command Center (TACC), with remote systems located throughout the MAGTF which are used to receive the ATO, and provide pertinent information up to the host system for execution management and generation of future ATOs.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	5

OPERATIONAL IMPACT

The fielding of CTAPS automates what was a manual process for the generation, dissemination, and execution of the ATO. The system is scaleable and provides capability for smaller, quick response capability, up to JFACC-size operations. The system allows conducting operations in a range of operational environments, from Marine Corps only, to Joint and coalition environments.

PROGRAM STATUS

Milestone III was completed during FY96. FOC was attained during the 2nd Quarter FY97. Migration of CTAPS to the Theater Battle Management Core System (TBMCS)/DII COE began in FY96 and is scheduled for completion during the 4th Quarter FY99.

DEVELOPER/MANUFACTURER

Lockheed Martin, Colorado Springs, CO

FIRE SUPPORT

Advanced Field Artillery Tactical Data System (AFATDS)

DESCRIPTION

The AFATDS is a joint Army/Marine Corps program to replace the Initial Fire Support Automated System (IFSAS). It employs a building block approach to incrementally incorporate automation into the fire support warfighting function. As a multi-Service, integrated, battlefield management and decision support system, it assists the commander in the planning, delivery, and coordination of supporting arms. AFATDS satisfies the fire-support command and control requirements of the Marine Corps. All echelons of the MAGTF will receive the AFATDS and it will be employed from the AAVC-7, LAV-C2, and AAAV.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	677	0

OPERATIONAL IMPACT

AFATDS will provide a MAGTF commander with the capability to rapidly integrate ground, air, and naval surface fire support with the scheme of maneuver. The AFATDS software architecture is interoperable with Marine Corps communications, MAGTF C4I baseline systems, and the GCCS COE.

PROGRAM STATUS

The Army, the lead Service of this Acquisition Category I program, made a favorable Milestone III decision in 1995. Army fielding efforts began in FY97 and will continue through FY07. The Marine Corps chose to wait on a subsequent version of AFATDS software that would include more air and naval surface fire support functionality. The Marine Corps established an AFATDS test bed in 1996 at I MEF, Camp Pendleton, CA. The Marine Corps participated in a multi-Service Limited User Test (LUT) at Ft. Sill, OK, during the 4th Quarter FY97 to evaluate the 1997 release of AFATDS software. The Marine Corps will make a procurement decision on the 1997 AFATDS software and the Army's CHS-2 hardware suite in March 1998. IOC is scheduled for FY99 and FOC in FY02.

DEVELOPER/MANUFACTURER:

Software - Hughes Defense Communications, Ft. Wayne, IN

Hardware - Army's CHS-2 contract with GTE

Target Location, Designation and Hand-off System (TLDHS)

DESCRIPTION

The TLDHS is a man-portable, automated equipment suite. It will provide Forward Observers, Forward Air Controllers, Naval Gunfire Spot Teams, and Reconnaissance Teams with the ability to quickly acquire targets, accurately determine observer and target locations, designate targets for laser-seeking Precision Guided Munitions (PGM) and Laser Spot Trackers. They can digitally transmit (hands-off) target data in pre-formatted and free-text messages to fire-support coordination and direction agencies and weapons delivery platforms. The system is comprised of an eye-safe laser range finder, a compass/vertical angle sensor, a GPS receiver, day optics, a thermal imager, a laser designator, and a rugged hand-held computer. Employing a modular design concept, the TLDHS will integrate the Joint-Service Lightweight Laser Designator Range finder (LLDR) with the Marine Corps-unique Digital Automated Communications Terminal (DACT).

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

The TLDHS system will significantly enhance combat effectiveness by improving the speed, accuracy, and lethality of fire-support, increasing observer and aircraft survivability, decreasing munitions requirements, and reducing combat loads. The TLDHS will replace the aging inventory of AN/PAQ-3 Modular Universal Laser Equipment (MULE) laser designators.

PROGRAM STATUS

In July 1997, the Marine Corps joined the Army in the joint Service development of the Lightweight Laser Designator Range finder. Subsequently, in August 1997, a 30-month EMD contract was awarded for the design, development, and fabrication of ten prototypes for test and evaluation. Concurrently, the Marine Corps Tactical System Support Activity, Camp Pendleton, CA, is developing fire-support software for both the DACT and TLDHS Programs. IOT&E is scheduled for FY99. Production will commence in FY00, with first deliveries scheduled for FY01. FOC is planned for FY04.

DEVELOPER/MANUFACTURER

Litton Laser Systems, Apopka, FL

COMMUNICATIONS AND COMMUNICATIONS SUPPORT

Digital Automated Communications Terminal (DACT)

DESCRIPTION

The DACT is a tactical input/output battlefield situational awareness system and communications terminal, which provides digital connectivity to echelons below the battalion level within the Marine Corps. It supports for both foot-mobile and vehicular-mounted applications. The DACT integrates information from the six C2 functional areas. It is used to receive, store, retrieve, create, modify, transmit, and display map overlays, operational messages/reports, and position information via MAGTF C4I tactical radios and data systems, networks, and wire lines. The DACT utilizes the Ruggedized Handheld Computer (RHC), which is a palmtop computer with an internal Global Positioning System (GPS), and Marine Corps-developed software. It weighs less than 7.5 pounds.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	902

OPERATIONAL IMPACT

The DACT will link battalion and larger sized units employing MAGTF C4I digital systems to smaller maneuver elements. Specific system features provide enhanced capabilities far beyond any system previously fielded to small units. The internal GPS provides position location information directly plotted on a digital map display. The touch screen with a passive pen entry device allows the user to free form draw overlays directly onto the screen and automatically transmit this information to other stations on the radio net. The internal dual channel modem allows one DACT to be connected to two radio nets so that mid-level units, such as a company, can receive information from subordinates and transmit that information to higher headquarters using the same DACT device. Pre-formatted messages allow users to quickly compose and transmit command and control information to other units.

PROGRAM STATUS

The program is in the EMD phase. Software development is being conducted on LRIP units. Milestone I/II was approved in 1995.

DEVELOPER/MANUFACTURER:

Hardware - Engineering and Professional Services Incorporated (EPS)/Tadiran

Software - MCTSSA/Inter-National Research Institute, Inc.

Super High Frequency (SHF) Tri-Band Advanced Range Extension-Terminal (STAR-T)

DESCRIPTION

The STAR-T satisfies the Marine Corps requirement for SHF, tactical, tri-band SATCOM terminals. It is a heavy HMMWV-mounted, multichannel, tri-band SATCOM terminal. The STAR-T will replace the currently fielded Ground Mobile Forces (GMF) SATCOM terminals. It brings to the battlefield an increased channel bandwidth capability and greater operational flexibility. The STAR-T supports the equivalent of four 1.544 Mbps circuits. It can communicate with the Defense Satellite Communications System (DSCS) and commercial satellite systems. It will provide communications planners more options to support the MAGTF commander.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	5

OPERATIONAL IMPACT

Currently, the deployed GMF multichannel SATCOM terminals do not have the bandwidth to meet the MAGTF commander's requirement for increasing quantities of information. Fielding of the STAR-T terminal will help alleviate the burden on today's communication systems.

PROGRAM STATUS

The STAR-T is an Army lead program. It completed Phase 0, Concept Exploration, and entered the LRIP/production phase with a Milestone I/IIIA decision in 1996. Milestone IIIB is expected in FY99.

DEVELOPER/MANUFACTURER

PM, MILSATCOM (Army)/Raytheon Corporation

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T)

DESCRIPTION

The SMART-T is a transportable, HMMWV-mounted, tactical SATCOM terminal that operates with Military Strategic and Tactical Relay (MILSTAR)-compatible communication payloads. The SMART-T transmits an extremely high frequency (EHF) uplink signal and receives a super high frequency (SHF) downlink signal to provide robust, low probability of intercept, jam resistant communications. SMART-T provides medium and low data rate communications simultaneously.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	24

OPERATIONAL IMPACT

The SMART-T aligns the Marine Corps with the Joint Staff's Military SATCOM architecture in the EHF spectrum and provides MAGTF elements with multi-channel, internal and external, long-haul, critical command and control communications. The SMART-T meets the Joint requirement for a data/voice SATCOM system that provides secure, mobile, worldwide, anti-jam, reliable, low probability of intercept, tactical SATCOM that are not subject to terrain masking or distance limitations.

PROGRAM STATUS

Contract was awarded in 1996. LRIP for the Army commenced in FY96. Full scale production will commence in FY99. IOC for the Marine Corps is FY01 and FOC is scheduled for FY02.

DEVELOPER/MANUFACTURER

Raytheon Electronic Systems, Marlborough, MA

Enhanced Position Location Reporting System (EPLRS)

DESCRIPTION

EPLRS utilizes packet radio technology employed within a Time Division Multiple Access (TDMA) scheme to provide secure, jam-resistant data distribution network. EPLRS provides Marine Forces with a critical command, control, and situational awareness tactical data distribution network that currently does not exist. It links the dynamic MAGTF C4I tactical data system (TDS) architecture with a user-transparent, automatic relaying, and automatic rerouting communications network. The end product is a seamless, and integrated MAGTF C4I data architecture to support communications connectivity for forward-deployed tactical commanders.

The EPLRS system is being fielded to the Army as their tactical data distribution network, thus, data connectivity between Army and Marine Forces will be made easier when operating in a Joint environment. The Navy is employing EPLRS as part of its KSQ-1 program. This functionality supports Marine Forces during amphibious operations.

The primary EPLRS system components are a Downsized Enhanced Net Control Station (NCS-E(D)) and Enhanced PLRS User Units (EP W). The NCS-E(D) provides control, timing, monitor, and cryptographic variable generation and updates for the EPLRS network.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity: EPUU</i>	537	0
<i>NCS-E(D)</i>	0	10

OPERATIONAL IMPACT

EPLRS provides mission critical data (common tactical picture and sensor-to-shooter information) distribution during unit maneuver and mobile command post operations. This type of connectivity is not currently available. The system will be fielded to forward-deployed tactical units: infantry, artillery, LAV, tank, and mobile command units.

PROGRAM STATUS

The Army, the lead Service, issued a successful Milestone III and fielding decision in February 1997. The Marine Corps will conduct a technical evaluation of EPLRS with unique Marine Corps equipment interface requirements during April 1998. A fielding decision is scheduled for July 1998. IOC will occur in FY00.

DEVELOPER/MANUFACTURER

Hughes Aircraft Company

Ground Combat Element Programs

The Ground Combat Element (GCE) is organized from resources and units of one or more divisions. This includes the division headquarters, infantry regiments, artillery regiments, and separate battalions. The mission of the GCE is to locate, close with, and destroy the enemy by fire and maneuver, or repel the enemy's assault by fire and close combat. The GCE commander has the means to conduct combined-arms operations. It is imperative that the GCE's resources be integrated with the full complement of MAGTF capabilities so that they may be brought to bear against the enemy. For the MAGTF commander, the GCE provides a capability to exercise command and control, conduct maneuver, apply firepower, and provide force protection.

The following programs will enable the GCE to execute OMFTS through enhancements in mobility, survivability, and accuracy of fires.



Advanced Amphibious Assault Vehicle (AAAV) Program

DESCRIPTION

The AAAV will join the MV-22 and LCAC as an integral component of the amphibious triad required to execute OMFTS. The AAAV will allow naval expeditionary forces to eliminate the battlefield mobility gap and, for the first time in the history of Naval warfare, maneuver ashore in a single, seamless stroke giving both the ships and landing forces sufficient sea space for maneuver, surprise, and protection. The AAAV's unique combination of offensive firepower, armor, and Nuclear, Biological, and Chemical (NBC) protection, and high-speed mobility on land and sea represent major breakthroughs in the ability of naval expeditionary forces to avoid an enemy's strengths and exploit its weaknesses. The AAAV remains the Marine Corps' number one ground acquisition priority.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

The AAAV will allow immediate, high-speed maneuver of Marine infantry units as they emerge from ships located over the visual horizon -- 25 miles and beyond. Projection of these forces will be conducted in a manner that exploits the intervening sea and land terrain to achieve surprise and rapidly penetrate weak points in the enemy's littoral defenses to seize operational objectives.

PROGRAM STATUS

The AAAV Program was approved by the Defense Acquisition Board (DAB), which conducted a Milestone I review in 1995 signifying the beginning of the Program Definition and Risk Reduction (PDRR) phase. In 1996, General Dynamics Land Systems was awarded the PDRR phase contract. Execution of the contract began at the AAAV Technology Center located in Woodbridge, VA. This facility houses the AAAV Program Office, General Dynamics and their subcontractors, and representatives from the Defense Contract Management Command. The AAAV prototype testing begins in FY00. IOC is currently scheduled for FY06.

DEVELOPER/MANUFACTURER

General Dynamics Amphibious Systems

Armored Vehicle Driver's Thermal Viewer (AVDTV)

DESCRIPTION

The AVDTV is the replacement system for the vehicle driver's current passive image intensification (I2) sight. It will enhance the driver's vision capability during periods of daylight and darkness and will penetrate battlefield obscurants. In addition, the AVDTV provides eye protection against battlefield laser devices since it is not a direct optic viewer. A total of 2,446 units, in various configurations, are required to support the M1A1, M88, AVLB, AAV, and LAV families of vehicles.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	210

OPERATIONAL IMPACT

The need to enhance vehicle driver sights surfaced as a top priority following the conflict in Southwest Asia (SWA). The fog, smoke, and dust found in SWA seriously impaired daylight visibility and intense darkness rendered the I2 night sights almost useless. The I2 sights were also prone to "washout" when conducting road marches near vehicles using headlights or in the vicinity of oil fires. Vehicle commanders with thermal sights often had to use their primary weapon sights to assist the driver in maneuvering their vehicle. The AVDTV will overcome many of the drawbacks encountered with the current sights.

PROGRAM STATUS

The Army is the lead Service for this program. A Production, Fielding/Deployment, and Operational Support (Milestone III) decision was achieved in April 1997. A contract award is scheduled for March 1998 as part of an omnibus contract similar to that used for other night vision equipment. Initial procurement funding is programmed in FY99 with initial fielding to support Marine Expeditionary Unit (MEU) deployments also scheduled in FY99. IOC is scheduled for FY00 and FOC is scheduled for FY04.

DEVELOPER/MANUFACTURER

TBD

Combat Breacher Vehicle (CBV)

DESCRIPTION

The CBV, known as the "Grizzly," is a full tracked, armored engineer vehicle specifically designed for conducting in-stride breaching of minefields and complex obstacles. Utilizing the M1 Main Battle Tank chassis, it provides the latest technology in crew protection and vehicle survivability while having the speed and mobility to keep pace with the maneuver force. The integrated system provides commonality with the current Marine Corps tank fleet. Major components of this system include a full width Mine Clearing Blade (MCB) with automatic depth control; a power driven excavating arm; and, a weapons station for self-defense.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

The CBV will be a key element of the combined-arms force employed as part of a synchronized assault. Its primary role will be as a force multiplier. The CBV provides an in-stride breaching capability to the MAGTF commander which allows him to maintain the momentum of his attack. The CBV will be supported during breaching operations by direct and indirect suppressive fires including aviation, artillery, tanks, and naval gunfire if available. Once the breach is complete, follow-on forces will attack through the created lanes and the maneuver force, including the CBV, will continue the assault through to the objective.

Current Army simulations run in the Combined Arms and Support Task Force Evaluation Model (CASTFOREM) show that a CBV equipped force suffers 24 percent fewer combat losses when compared with current breaching methods. This is attributed to a 12 percent decrease in exposure time by the breach force due to the speed of the CBV in overcoming obstacles. This equates to a Company(+) in terms of personnel and equipment. In real terms, this is a savings in casualties of 8 Tanks, 10 AAVs, and over 200 Marines.

PROGRAM STATUS

The CBV program received a favorable Milestone II decision in 1996 and entered the EMD phase. Milestone III and Production Contract award are scheduled in FY03. Marine Corps IOC is planned for FY04. The Marine Corps is currently in the process of reviewing and adopting the Army's ORD.

MANUFACTURER/DEVELOPER

United Defense Technology Partnership, York, PA

Amphibious Assault Vehicle Reliability, Availability, and Maintainability (AAV RAM/Rebuild)

DESCRIPTION

To avoid increasing costs of maintenance and to achieve required levels of performance and combat readiness until replaced by the AAAV, the AAV fleet will undergo reliability, availability, and maintainability (RAM) improvements with a vehicle rebuild to original standards. Current AAV engines and suspensions will be replaced with non-development items (NDI) derived from the Army's Bradley Fighting Vehicle. This program will result in returning the vehicle to its original horsepower-to-ton ratio, more adequately match the suspension to the load, and return the vehicle to "like-new" condition in a cost-effective and rapid manner.



PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	170

OPERATIONAL IMPACT

The RAM/Rebuild Program will return the AAV to its original performance specification and retain combat readiness until fully replaced by the AAAV.

PROGRAM STATUS

The AAV RAM/Rebuild Program was approved in June 1997. Preparation of a solicitation package is underway. An EMD (Milestone II) decision was made in December 1997. Preparation of test vehicles for operational testing is ongoing. A Production, Fielding/Deployment, and Operational Support (Milestone III) review and contract award is anticipated in the 1st Quarter of FY99.

DEVELOPER/MANUFACTURER

Marine Corps Logistics Bases/Cummins Engine Company Columbus, IN

Hull Modification Contractor - TBD

Lightweight 155MM Howitzer (LW155)

DESCRIPTION

The LW155 Howitzer will be a robust, efficient weapon system designed to replace the aging M198 155mm Towed Howitzer as the only cannon system in the Marine Corps inventory. The LW155 retains the current M198 Howitzer's range yet will weigh no more than 9,000 pounds (compared to 16,000 lbs for the M198). This reduction in weight will give the LW155 significantly improved transportability and mobility by sea, air, and land platforms. Capable of being transported by the medium lift MV-22 Osprey aircraft, the LW155 is designed for expeditionary operations requiring light, highly mobile artillery.

PROCUREMENT PROFILE:

FY98**FY99***Quantity:**0**0*

OPERATIONAL IMPACT

Because of its lighter weight, automated breech, auto-rammer, self-locating ability, and digital fire control, the LW155 Howitzer will give the MAGTF commander greater operational and tactical flexibility while increasing the responsiveness and efficiency of artillery units supporting ground campaigns. The increased mobility of the LW155 will significantly improve the ship-to-shore and across-the-beach movement of artillery while increasing the survivability and lethality of artillery units in OMFTS.



PROGRAM STATUS

The LW155 is currently in the EMD phase of the acquisition cycle. Testing and competitive selection of a single Howitzer candidate was completed on 17 March 1997 with the award of a three year EMD contract. A production decision is scheduled for FY00, with an IOC in FY02. LW155 is a fully coordinated Marine-Army developmental program with the Marine Corps as the lead Service.

DEVELOPER/MANUFACTURER

Cadillac Gage Textron Land and Marine Systems, New Orleans, LA, and Vickers Shipbuilding and Engineering Ltd, UK

Javelin

DESCRIPTION

The Javelin, formerly known as the AAWS-M, is a medium-range, man-portable, "fire-and-forget" weapon system that will replace the Dragon anti-armor missile system currently deployed with infantry battalions.

Javelin will satisfy an operational requirement to provide increased mobility, reliability, higher hit/kill probability, and greater effective range (2,000m+) against current and future armored threats. Javelin uses an infrared, fire-and-forget seeker, coupled with an advanced warhead and a top-down attack missile trajectory to provide its lethality. It can be fired from inside buildings and enclosures, which makes it an effective system for employment in urban terrain, as well as in open areas.



PROCUREMENT PROFILE:

Quantity: Command Launch Unit

FY98

FY99

140

153

Missiles

380

741

OPERATIONAL IMPACT

The Marine Corps has a continuing requirement for a man-portable, anti-armor weapon system capable of engaging and defeating any armor threat. Javelin will replace the Dragon medium anti-tank weapon system, which is ineffective against the improved conventional and explosive reactive armor on existing threat vehicles.

PROGRAM STATUS

In May 1997, the full-rate production contract was awarded for Javelin. Marine Corps IOC is planned in late FY99.

DEVELOPER/MANUFACTURER

Raytheon TI and Lockheed Martin (Joint Venture)

Predator

DESCRIPTION

The Predator, formerly known as the SRAW, is a short-range assault missile with a fly-over, shoot-down attack profile, similar to that of the TOW-IIB. The warhead uses an explosively-formed penetrator and is lethal against all current main battle tanks including those equipped with explosive reactive armor. As a fire-and-forget, 20-pound weapon with a disposable launcher, Predator has an effective range between 17 and 600 meters and has an inertial-guided auto pilot to increase its accuracy. The inertial auto pilot determines range and lead prior to missile launch. The flight module increases the gunner's survivability with its soft launch capability. This capability also allows the weapon to be fired from enclosed spaces.

PROCUREMENT PROFILE:

Quantity: Missile Systems

FY98

0

FY99

0

OPERATIONAL IMPACT

Predator will provide infantry units with a weapon that will satisfy both the current and future needs for a lightweight anti-armor weapon with lethality against main battle tanks. Predator is designed to satisfy the light anti-tank weapon requirement and will complement the fielding of the Javelin medium anti-tank weapon.

PROGRAM STATUS

Predator is in the EMD phase which is scheduled for completion in FY00. Engineering model flights completed in FY96 demonstrated design maturity and system performance. Developmental tests are scheduled in FY99 to qualify, safety certify, and man-rate the system design.

Operational tests are scheduled for FY00 to be followed by a Production phase (Milestone III) decision. Procurement of 18,190 missiles is planned for FY00 through FY11 with fielding to the infantry battalion anti-armor platoon. Although it is a unilateral Marine Corps Acquisition Category III program, the Army is currently pursuing development of the Multipurpose Individual Munition (MPIM) program that will share Predator's flight module and launcher assemblies. An existing Memorandum of Agreement outlines the "Joint Effort" parameters concerning the sharing of technology between the Marine Corps Predator and the Army MPIM program.

DEVELOPER/MANUFACTURER

Lockheed Martin Electronics and Missiles

Anti-Armor Weapon System-Heavy (AAWS-H)

DESCRIPTION

AAWS-H will be the replacement for the TOW missile system. It will incorporate improvements in range, lethality, survivability, and target acquisition. The USMC is currently conducting an Analysis of Alternatives to assess overall USMC anti-armor concepts. Until this study defines the appropriate course of action, we continue to monitor the Army FOTT (Follow-On-To-TOW) Program.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

The AAWS-H is designed to address shortfalls in the current TOW system that render it unsuitable for employment on the future battlefield. The TOW's large firing signature, long flight time, and wire guidance system combine to create a significant threat to the gunner and to the system's survivability. The TOW missile is also vulnerable to currently fielded enemy countermeasures and its effectiveness will be further reduced with the proliferation of Active Protection Systems (APS). More critically, the Marine Corps TOW inventory will reach the end of its shelf life within the next ten years. Acting now to identify and field a suitable replacement for the TOW enables the Marine Corps to maintain a relevant and capable heavy anti-tank weapon.

PROGRAM STATUS

The Marine Corps is evaluating alternative solutions as part of Concept Exploration and Definition Phase activities.

DEVELOPER/MANUFACTURER

TBD

Anti-Personnel Obstacle Breaching System (APOBS)

DESCRIPTION

APOBS is a two-man obstacle breaching system contained in two packs of 65 pounds each. It can be deployed in less than 120 seconds, has a safe stand-off distance of 25 meters, and creates a breach lane 0.6 meters by 45 meters (the breach lane must be proofed before it before it can be considered cleared). APOBS is 90 percent effective against single impulse mines. Other mines, such as double impulse and magnetically fused mines, will remain intact unless the explosives in APOBS sympathetically detonate or damage them. The APOBS will replace the M1A2 Bangalore Torpedo Demolition Kit currently in the Marine Corps inventory.

PROCUREMENT PROFILE:

Quantity:

FY98

100

FY99

833

OPERATIONAL IMPACT

APOBS significantly improves the stand-off breaching capability of Marine Corps infantry and combat engineer elements against anti-personnel mines and wire obstacles. One APOBS employed by two Marines from a 25-meter stand-off distance creates a breach lane that presently requires three bangalore torpedo demolition kits weighing 594 pounds and a squad of Marines more than 15 minutes to deploy.

PROGRAM STATUS

APOBS is scheduled for a Milestone III decision in 2nd Quarter FY98. Systems produced in FY99 will be used for first article testing. Full-rate production will start in FY00.

DEVELOPER/MANUFACTURER:

Coastal Systems Station, Panama City, FL

Naval Surface Warfare Center (Crane and Indian Head Divisions, and White Oak Detachment)

Production - TBD

AN/PAS-13 Thermal Weapon Sight (TWS)

DESCRIPTION

TWS is a light-weight, low power, high performance, forward looking, infrared (FLIR) device. TWS will augment existing crew-served night vision sights. It does not rely on visible light for operations, and is virtually unaffected by weather and obscurants (both natural and manmade). The TWS operates by discerning the temperature variation between targets and their background. TWS is completely passive and although designed for target detection and engagement with Marine Corps crew served weapons, it can be used for all weather surveillance. TWS will be a family of sights which will include a medium thermal weapons sight (MTWS) and a heavy thermal weapons sight (HTWS).

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

The TWS provides crew served weapons operators with 24-hour surveillance of the battlefield and 24-hour target engagement capability. The device is designed to allow gunners to detect, and engage targets out to the maximum effective range of the weapons system on which it is mounted. The TWS will bore sight the attached weapon and mount to a standard rail. MTWS will weigh 5 lbs or less including the battery; HTWS will weigh 6 lbs or less including the battery. MTWS must be able to distinguish personnel at 1100m (clear air), 300m obscurant; HTWS must be able to distinguish personnel at 2000m (clear air), 500m obscurant. TWS will be used on the M249 SAW, M240G medium machine gun, M2 .50 caliber machine gun, and MK19 40 mm grenade launcher.

PROGRAM STATUS

TWS is a joint Army/Marine Corps procurement. The final Request For Proposal (RFP) is scheduled for release during the 2nd Quarter FY98. The RFP will be reviewed and contract awarded by the 3rd Quarter FY98. It will be a full and open development program with a research and development contract featuring a LRIP quantity and performance based specifications. The Army will be fielding limited quantities of TWS from a FY97 bridge contract. The Marine Corps will take the third year of the basic contract along with two option years for procurement of this system, and additional years on follow-on contracts.

DEVELOPER/MANUFACTURER

TBD

Gun Laying and Positioning System (GLPS)

DESCRIPTION

A single GLPS provides the ability to lay each howitzer in the artillery firing battery quickly, by determining position location, altitude, and an orienting line from one central location when survey teams are not available. GLPS consists of a tripod-mounted positioning and orienting device. The tripod-mounted positioning and orienting device is composed of four fully integrated components: a North-seeking gyroscope, an eye-safe laser range finder, and an electronic theodolite interfaced with a Precision Lightweight Global Positioning Receiver (PLGR). The theodolite controls the menu-driven software and serves as the system's Computer Processing Unit (CPU). GLPS is being acquired as a NDI using COTS/GOTS technologies.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

GLPS provides the artillery battery with an autonomous hasty survey capability. GLPS will free commanders of much of the positioning and directional control burdens that restrict their flexibility today while providing consistent speed, accuracy, and responsiveness necessary to keep pace with the maneuver commander's operational tempo.

PROGRAM STATUS

As the lead Service, the Army will administer the GLPS contract. The Army awarded the contract in November 1997. IOC is scheduled for FY02 with FOC in FY03.

DEVELOPER/MANUFACTURER

TBD

Aviation Combat Element Programs

The Aviation Combat Element (ACE) provides the MAGTF commander with enormous flexibility, mobility, and firepower. Part of the ACE's mission is to provide day and night, all-weather air support to the MAGTF. It accomplishes this mission through responsive offensive air and assault support. Offensive air support isolates the battlespace and provides timely and accurate close air support to maneuvering forces. Assault support ensures the rapid movement of combat power ashore, and provides a means to quickly maneuver ground forces in the battlespace. The following aviation programs enhance and complement the Marine Corps expeditionary nature and execution of OMFTS.

Assault Support

MV-22 Osprey

DESCRIPTION

The MV-22 Osprey is a tiltrotor, vertical/short takeoff and landing (V/STOL) aircraft designed to replace the current fleet of CH-46E and CH-53D aircraft. The MV-22 will join the AAAV and LCAC as an integral part of the amphibious triad necessary to execute the concept of OMFTS. Specific missions include amphibious and land assault, raid operations, medium cargo lift, tactical recovery of aircraft and personnel (TRAP), fleet logistic support, and special warfare. The MV-22's design incorporates the advanced but mature technologies of composite materials, fly-by-wire flight controls, digital cockpits, airfoil design, and manufacturing. The MV-22 Osprey is capable of carrying 24 combat-equipped Marines or a 10,000 pound external load. It also has a strategic self-deployment capability with a 2,100 nautical mile range with a single aerial refueling. The MV-22's 38-foot rotor system and engine/transmission nacelle mounted on each wing tip allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, converting the MV-22 into a high-speed, high-altitude, fuel-efficient turbo-prop aircraft. The MV-22 is a multi-mission aircraft originally designed for use by all the Services. The Marine Corps, Navy, and Air Force have committed to fielding this unique aircraft. Procurement of the MV-22 remains the Marine Corps number one aviation acquisition priority.

PROCUREMENT PROFILE:

Quantity:

FY98

7

FY99

7

OPERATIONAL IMPACT

The MV-22 will be the cornerstone of Marine Corps assault support possessing the speed, endurance, and survivability needed to fight and win on tomorrow's battlefield. This combat multiplier represents a quantum improvement in strategic mobility and tactical flexibility for amphibious and prepositioned maritime forces.



PROGRAM STATUS

The program is currently in the EMD phase. Four EMD aircraft have been built to support continued Developmental Tests and Operational Assessments. Testing accomplishments include the successful completion of OT-IIC. Preparations are currently ongoing for OT-IID, the final operational assessment before OPEVAL. The first five fleet aircraft are being built as part of the first LRIP. The EMD MV-22s have logged over 1,273 flight hours in 1,080 flights. The total programmed buy for the Marine Corps, Navy, and Air Force is projected at 458 aircraft. The Marine Corps requirement is for 360 aircraft.

DEVELOPER/MANUFACTURER

Bell Helicopter Textron, Fort Worth, TX

Boeing Defense and Space Group, Helicopter Div., Philadelphia, PA

H-1 Upgrade (4BN/4BW) Program

DESCRIPTION

The H-1 Upgrade (4BN/4BW) Program replaces the current two-bladed rotor system on the UH-1N and AH-1W aircraft with a new, four-bladed, all-composite rotor system coupled with a sophisticated, fully-integrated, state-of-the-art cockpits. The UH-1N is a two-seat, combat utility helicopter that provides airborne C2, supporting-arms coordination,



medical evacuation, maritime special operations, insertion/extraction, and search and rescue. The AH-1W is a multi-mission, two-seat, tandem cockpit, twin-engine attack helicopter capable of land and sea-based operations. It provides close air support under day, night, and adverse weather conditions. Additionally, it is capable of anti-armor/anti-helicopter operations, armed escort, armed and visual reconnaissance, and supporting arms coordination.

In addition to the new rotor system and cockpit, the H-1 Upgrade will incorporate a new performance-matched transmission, a four-bladed tail rotor and drive system, and upgraded landing gear for both aircraft. For the AH-1W, structural modifications to support six weapons stations will be completed. The 4BW increases aircraft agility, maximum continuous

speed, and payload. The advanced cockpit reduces operator workload, improves situational awareness, and provides growth potential for future weapons and joint interoperability. It integrates on-board planning, communications, digital fire control, self-contained navigation, night targeting, and weapons systems in mirror-imaged crew stations. The 4BN incorporates the 4BW rotor system and dynamic components, and maximizes commonality and supportability between the two aircraft. The 4BN program returns the required aircraft power margins, provides adequate mission payload and warfighting capability growth potential.

OPERATIONAL IMPACT

The H-1 Upgrade (4BN/4BW) program is designed to reduce life-cycle costs, significantly improve operational capabilities, resolve existing safety deficiencies, and extend the service life of both aircraft. Commonality between aircraft will greatly enhance the maintainability and deployability of the systems with the capability to support and operate both aircraft within the same squadron structure.

PROGRAM STATUS

The H-1 Upgrade (4BN/4BW) program continues in the EMD phase. Preliminary Design Review (PDR) was completed in June 1997 without major discrepancies. Litton, working with Rockwell Collins, has been awarded a contract to develop the integrated cockpit for the H-1 Upgrade Program.

DEVELOPER/MANUFACTURER

Bell Helicopter Textron Inc.

KC-130J

DESCRIPTION

The KC-130 is a versatile multi-engine, tactical aerial refueler/transport which supports all six functions of Marine aviation. It is currently the only long-range assault support aircraft organic to the Marine Corps. The KC-130J with its increase in speed (+21%) and range (+35%) features an improved air-to-air refueling system and state-of-the-art flight stations. These flight stations include two Heads-Up Displays (HUDs), night vision lighting, an augment crew station, and fully integrated digital avionics architecture. It also includes an Allison AE 2100D3 propulsion system with full authority digital electronic controls, advanced technology six bladed propeller system, and 250 knot cargo ramp and door. The KC-130J will provide the MAGTF commander with a state-of-the-art, multi-mission, tactical aerial refueler/transport well into the next century. The Marine Corps desires to replace its aging fleet of KC-130Fs with the new KC-130J.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	2	0

OPERATIONAL IMPACT

The KC-130 provides fixed- and rotary-wing tactical in-flight refueling, rapid ground refueling of aircraft or tactical vehicles, assault air transport of air-landed or air-delivered personnel, supplies and equipment. It also provides command and control augmentation, pathfinder, battlefield illumination, tactical aeromedical evacuation, and search and rescue mission support. This force multiplier is well-suited to the mission needs of a forward-deployed MAGTF. The KC-130J will bring increased capability and mission flexibility to the planning table with its satellite communications system, survivability enhancements, night systems, enhanced rapid ground refueling, variable speed refueling paradrop, and improved aircraft systems. Greater reliability and maintainability, coupled with lower operating and support costs, will result in lower life cycle costs for the KC-130J compared to the current KC-130F.

PROGRAM STATUS

Currently in commercial production, initial delivery of the KC-130J to the Marine Corps is anticipated during FY99.

DEVELOPER/MANUFACTURER

Lockheed Martin

OFFENSIVE AIR SUPPORT

AV-8B Harrier Remanufacture (Reman)

DESCRIPTION

The AV-8B Harrier is a single-seat, subsonic, light attack aircraft possessing vectored thrust. Its vertical/short take-off and landing (V/STOL) design gives it the capability to operate from a variety of airfields and sea-based platforms. The current Harrier II (plus) model incorporates an improved engine, night warfighting capabilities, and the APG-65 multimode radar. The remanufacture program will upgrade 72 older day-attack aircraft to the current radar/night-attack standard, at approximately 80 percent of the cost of a new aircraft.



PROCUREMENT PROFILE:

Quantity: (Reman)

FY98

12

FY99

12

OPERATIONAL IMPACT

The MAGTF relies heavily on its organic aviation assets to offset limited artillery and tank assets and to provide fire support. The V/STOL capability of the AV-8B allows forward basing to facilitate timely close air support to Marine ground forces. The AV-8B operates from "L" Class ships, from rapidly constructed expeditionary airfields, from forward sites such as roads, and from damaged conventional airfields. The addition of night-attack and radar capabilities allows the Harrier to be responsive to the needs of the MAGTF for expeditionary night and adverse weather offensive air support.

PROGRAM STATUS

The remanufacture of 72 aircraft is programmed through FY01.

DEVELOPER/MANUFACTURER

Boeing

F/A-18C/D Hornet

DESCRIPTION

The F/A-18 Hornet is a twin-engine, supersonic, strike-fighter aircraft. It fulfills both the air-to-air and air-to-ground mission requirements and can operate from conventional airfields and aircraft carriers. The F/A-18Cs delivered since FY90 have increased night and marginal weather capability, including a color moving map display, night vision goggle-compatible lighting and a navigation forward-looking infrared (NAVFLIR) sensor. The two-seat version, F/A-18D, incorporates all warfighting capabilities of the F/A-18C and will include a tactical reconnaissance capability. This aerial reconnaissance capability, ATARS, provides near real-time aerial imagery to the MAGTF and will deploy with four systems per VMFA (AW) squadron beginning in FY99.



PROCUREMENT PROFILE:

FY98

FY99

Quantity:

0

0

OPERATIONAL IMPACT

The F/A-18C provides modern multi-mission offensive and defensive anti-air capability and offensive air support. The F/A-18D provides the MAGTF with a platform capable of tactical air control and reconnaissance, while retaining the capabilities of the F/A-18C. Both aircraft provide powerful and flexible air support and suppression of enemy air defenses. The maintainability and multi-mission capabilities of the F/A-18 make it well-suited to the needs of the MAGTF in an austere expeditionary environment.

PROGRAM STATUS

The Marine Corps anticipates programmed upgrades to enhance the current capabilities of the F/A-18 with weapons such as digital communications, tactical data link, and tactical reconnaissance systems. This ensures that our F/A-18s remain viable and relevant until replaced by the ASTOVL Joint Strike Fighter (JSF).

DEVELOPER/MANUFACTURER

The Boeing Company
Northrop Grumman
Hughes

ASTOVL Joint Strike Fighter (JSF)

DESCRIPTION

The ASTOVL JSF will be a single engine, stealthy, supersonic, strike-fighter aircraft capable of short takeoffs and vertical landings. It will combine the basing flexibility of the AV-8 with the multi-role capabilities, speed and maneuverability of the F/A-18 to fulfill both the air-to-ground and air-to-air requirements of the Marine Corps. The aircraft is intended to have a very low RF and IR signature, with superior capabilities over both of the aircraft it will replace (AV-8B, F/A-18C/D) in the areas of survivability, lethality, and supportability.

PROCUREMENT PROFILE:

Quantity:

FY98

0

FY99

0

OPERATIONAL IMPACT

The JSF provides a multi-mission offensive air support and an offensive/defensive anti-air capability. The JSF also provides the MAGTF with a platform capable of tactical air control and tactical reconnaissance. Additionally, the aircraft will be able to provide suppression of enemy air defenses. The needs for this aircraft are focused on readiness, expeditionary capability, the combined arms concept, and the conduct of OMFTS.



PROGRAM STATUS

The JSF is a Joint program with the Air Force, Navy and Marine Corps. Presently the program is in the Concept Demonstration Phase, with two contractors, Boeing Aircraft Company and Lockheed Martin, building an aircraft that will fly in FY00. The Marine Corps anticipates first aircraft delivery in FY07 with IOC of the first JSF squadron in FY10. Total procurement for the Marine Corps will be 609 aircraft.

DEVELOPER/MANUFACTURER

Boeing/Lockheed Martin

Hughes/Westinghouse

Pratt & Whitney/General Electric

Combat Service Support Element Programs

The Combat Service Support Element (CSSE) is task-organized to sustain the CE, GCE and ACE beyond their own organic capabilities. It accomplishes this goal by providing several key functions, including supply, maintenance, transportation, general engineering, health services, and services. The CSSE is fully deployable on amphibious shipping and is an integral component of the expeditionary, sea-basing support concept for executing OMFTS.



Medium Tactical Vehicle Remanufacturing (MTVR) Program

DESCRIPTION

The MTVR Program will provide the backbone for future Marine Corps wheeled combat, combat support, and combat service support. This program will replace the existing medium tactical motor transport fleet of 5-ton off-road/10-ton on-road trucks with 7-ton off-road/12-ton on-road cost-effective, state-of-the-art, and technologically advanced trucks. The program emphasizes modern, non-developmental truck technologies. Major advancements include: a new environmentally compliant and electronically controlled engine/transmission, independent suspension, a central tire inflation system, anti-lock brakes with traction control, and a

22 year corrosion life. A total of 7,360 Marine and approximately 500 Navy 5-ton trucks are to be replaced, and approximately 3,000 Army trucks will be remanufactured.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	240



OPERATIONAL IMPACT

These new vehicles will provide a significant improvement over the current vehicles and will have a dual-rating capacity of at least 7 tons off-road and 12 tons on-road. Significant improvements in reliability and maintainability are expected as a result of the reduced shock and vibration from the independent suspension and from the extensive use of commercial heavy-duty components. Additionally, these new vehicles are expected to provide 22 years of service life.

PROGRAM STATUS

A Milestone I/II decision was approved in 1995 for this Acquisition Category II program. This joint program is under the same contract as the Army's Medium Tactical Truck Remanufacture program, thereby achieving both cost and production efficiencies. Prototype trucks from American General Corporation of Livonia, MI, and Oshkosh Truck Corporation of Oshkosh, WI, are currently in competitive developmental testing to support contract award in early FY99. LRIP is scheduled to commence in FY99 with IOC scheduled for FY01.

DEVELOPER/MANUFACTURER

TBD

Light Tactical Vehicle Remanufacture (LTVR) Program

DESCRIPTION

The Marine Corps light tactical vehicle fleet consists of approximately 17,500 HMMWVs. Fielding of the HMMWV began in 1986 and was completed in 1995. With an Economic Useful Life (EUL) of 14 years, the Marine Corps HMMWVs will begin to reach their EUL in the year 2000. Largely due to corrosion from operations in a marine atmospheric environment (salt spray), significant numbers of HMMWVs currently require replacement. The LTVR



program is scheduled to replace (procure A2 series HMMWV) or remanufacture (rebuild/improve existing HMMWVs) approximately 7 percent of the HMMWV fleet per year beginning in FY98.

PROCUREMENT PROFILE:

Quantity:

FY98

530

FY99

714

OPERATIONAL IMPACT

These new or remanufactured vehicles will be equipped with numerous system component upgrades to improve vehicle safety, reliability (improved electrical start, brake and drive train systems), availability, maintainability, durability (corrosion prevention), and human factors.

PROGRAM STATUS

A Milestone I/III decision is anticipated during 2nd Quarter FY98. Should the "HMMWV A2 Rebuy" alternative be chosen as the most cost and operationally effective approach, the Marine Corps would exercise an option via the current Army HMMWV A2 contract in March 1998 with deliveries beginning 1st Quarter FY99. Should the "Remanufacture" alternative be chosen, we anticipate contract award during 3rd Quarter FY98 with deliveries beginning 4th Quarter FY99. IOC is scheduled for FY00. FOC is anticipated in FY09.

DEVELOPER/MANUFACTURER

Currently, a HMMWV A2 production contract, managed by the Army, is in effect with AM General Corporation through FY00.

Third Echelon Test Set (TETS)

DESCRIPTION

TETS will provide 3rd and 4th echelon maintenance organizations of the Combat Service Support Element (CSSE) with a support capability for all Marine Corps equipment commodity areas. TETS will provide diagnostic testing and fault isolation from Line Replaceable Units (LRU) to Shop Replaceable Units (SRU). The SRU is the smallest electronic component repairable or replaceable at the intermediate unit level. Organizations tasked with providing maintenance support throughout the MAGTF must be prepared to perform their missions in a variety of combat and non-combat expeditionary environments. Maneuver warfare stresses the importance of minimizing the time required to make combat essential equipment fully operational. TETS will provide maintenance units with the capability to repair systems as far forward as possible.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	34	59

OPERATIONAL IMPACT

The MAGTF has numerous systems and equipment that contain printed circuit cards. However, the Marine Corps has no man-portable test capability that can be used to fault, isolate, and repair line-replaceable units down to the individual circuit card assemblies. This deficiency frequently requires maintenance personnel to evacuate equipment to rear areas for required repairs. As weapons systems become more complex, the amount of MAGTF equipment containing secondary repairables (SECREPs) with replaceable electronic components is increasing. The Marine Corps has recognized the need for and has fielded automated test equipment to support maintenance of equipment containing LRUs/SRUs. TETS will significantly enhance 3rd and 4th echelon maintenance support capabilities.

PROGRAM STATUS

TETS is in the EMD phase. Milestone I/II occurred in 1995. A LRIP contract, with production options, was awarded on 15 August 1997. A Milestone III review is scheduled for May 1998.

DEVELOPER/MANUFACTURER

Man Tech Systems Engineering, Chantilly, VA

Combat Service Support Element/ Supporting Establishment Automated Information System (CSSE/SE AIS)

DESCRIPTION

CSSE/SE AIS is the overarching strategy for the logistics information environment. The goal of CSSE/SE AIS is to develop functional applications with a open architecture, operating from common platforms, and supported by shared data. Under the shared data concept, data is acquired/created once and is separated from the applications. This provides logisticians with decision support tools for information management. This concept will improve the availability, integrity, and timeliness of logistics data, provide total asset visibility, and enable Precision Logistics to provide the effective employment of resources.

The MAGTF Logistics Automated Information System (MAGTF LOG AIS) is a family of coordinated, mutually supporting, automated systems to support deliberate and crisis action/time-sensitive planning for MAGTF deployment, employment, and redeployment. MAGTF LOG AIS consists of the following systems: MAGTF II, MAGTF Deployment Support System II (MDSS II), Computer Aided Embarkation Management System (CAEMS), Transportation Coordinators' Automated Information for Movements System (TC AIMS), and MAGTF Data Library (MDL).

OPERATIONAL IMPACT

MAGTF II is used in Operation Plan (OPLAN) development for estimating lift "footprints," comparing alternative force structures, forecasting lift and sustainability requirements, and rapidly generating and refining Time-Phased Force and Deployment Data (TPFDD) to meet short-force closure deadlines. Additionally, it provides the Marine Corps data interface to the JOPES. MDSS II is the unit level deployment planning and execution system that provides the MAGTF and subordinate elements the ability to develop and tailor plan-specific force structures (personnel, supplies, and equipment) for multiple OPLANS, and monitor real-time combat readiness (personnel and equipment attainment) status. MDSS II serves as the source of actual movement and embarkation data at level VI detail (NSN, SSN, serial number, etc.) for other MAGTF/LOG AIS subsystems. CAEMS provides an interactive tool for producing amphibious, commercial shipping, and Maritime Prepositioned Ships (MPS) load plans (template deck diagrams) and associated standard and embarkation reports (Dangerous Cargo Manifest, Trim Stress and Stability, etc.). TC AIMS supports planning and execution for movement of forces from the Continental United States and overseas points of origins to Ports-of-Embarkation and from Ports-of-Debarkation to

destinations. TC AIMS provides in-transit visibility to the U.S. Transportation Command's (USTRANSCOM) Component Commands (TCCs) and the Defense Transportation System (DTS). MDL is the data dictionary tool used to facilitate gathering of valid source data for use by all the MAGTF/LOG AIS family of systems.

PROGRAM STATUS

MAGTF LOG AIS is managed by Headquarters Marine Corps. Version 4.1A is scheduled for release in the second quarter FY98.

DEVELOPER/MANUFACTURER

Stanley Associates, Alexandria VA; SRA Corporation, Arlington, VA

The Asset Tracking Logistics and Supply System (ATLASS) is the Marine Corps primary logistic modernization effort for a deployable, integrated supply and maintenance AIS capable of supporting rapid deployment and employment. ATLASS will obtain and manage information to accurately predict, procure, and provide the right combat service support, in the right amount, at the right time and place.

PROGRAM STATUS

The Marine Corps is using a phased development and implementation approach to transition to ATLASS. The remaining phases include:

Phase II Plus: This phase includes the integration of using unit supply and shop level maintenance functions, as well as the transition to a full client/server and an open system architecture. A Milestone I/II was completed in August 1997 with the Milestone III expected in March 1999.

Phase III (Follow-on Modular Enhancements): This phase will incrementally capture additional functional requirements such as: the removal of the remaining retail supply processing from the mainframe computer, the incorporation of base/station level materiel management functions, the integration of an industry leading warehousing program, and the inclusion of an advanced forecasting module.

DEVELOPER/MANUFACTURER

Phase II Plus software design was completed in 1996. The Space and Naval Warfare Systems Center, Chesapeake, VA, is the software development activity. The Naval Tactical Command Support System is the software baseline.

1500 Gallon Per Hour Reverse Osmosis Water Purification Unit (ROWPU)

DESCRIPTION

The Marine Corps currently uses the 600 Gallon Per Hour ROWPU to produce potable water from salt, brackish, and fresh water sources in amphibious and expeditionary environments. The 1500 GPH ROWPU will incorporate technological advances which will produce a significantly more efficient water purification system. The new system will more than double the production rate of potable water while maintaining the same "footprint".

PROCUREMENT PROFILE:	FY98	FY99
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<i>Quantity:</i>	0	0
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OPERATIONAL IMPACT

The 1500 GPH ROWPU is a joint DoD effort intended to replace the existing 600 GPH ROWPU on a 1 for 2 basis in order to meet water usage demands and eliminate deficiencies identified during *Operation Desert Shield/Storm*.

PROGRAM STATUS

The Army and the Marine Corps are jointly participating in the development of the 1500 GPH ROWPU, with the Army as lead Service. Milestone III and type classification of the 1500 GPH ROWPU are projected for FY00 with competition for a production contract scheduled for FY01. Marine Corps IOC is scheduled for FY03.

DEVELOPER

Army Tank-Automotive & Armaments Command (TACOM)

Naval Facilities Engineering Service Center

MANUFACTURER

TBD

Other Support to the MAGTF

Nuclear, Biological, and Chemical (NBC) Defense Program

DESCRIPTION

The Marine Corps is pursuing a number of enhancements that will increase the effectiveness of personnel and units to operate in an NBC environment. The following efforts are ongoing:

The Chemical/Biological Incident Response Force (CBIRF) is a Marine Corps unique organization that provides rapid initial consequence management to mitigate the effects of a chemical and/or biological terrorist incident in support of a designated civilian or military commander. The CBIRF provides training to DON organizations and assists with the development of new equipment, techniques, and procedures for responding to the threat of chemical and biological agents. The CBIRF is equipped with a variety of state-of-the-art items that will enable the unit to perform its mission in chemical/biological detection, decontamination, medical, security, and service support. Initial procurements involve state-of-the-art, COTS-certified items that are readily available. This capability supports the National policy articulated in Presidential Decision Directive 39, which states that the United States will be able to manage the consequences of a chemical and biological incident.

The Joint Service Light Nuclear, Biological, and Chemical Reconnaissance System (JSLNBCRS) is a joint Service program. JSLNBCRS will accurately and quickly detect, identify, mark, and communicate the presence of NBC or toxic industrial chemical hazards and their anticipated effects on the integrated battlefield. NBC warning information provided by JSLNBCRS will enable the MAGTF commander to proactively respond to a contaminated environment. JSLNBCRS will support land operations in a NBC environment as required by the Marine Corps Master Plan. This system consists of a base vehicle, a full array of radiological, chemical, and biological agent sensors, analysis equipment/software, a communications suite, and ancillary equipment. The base vehicles are expected to be the LAVs and the HMMWVs.

OPERATIONAL IMPACT

The Marine Corps anticipates using LAV variants with division reconnaissance elements while exploiting the HMMWV variants' capabilities to monitor main supply routes (MSR), logistics bases, airfields, ports, and key command and control centers for NBC hazards.

This system will have significantly less impact on strategic and intra-theater lift resources and provide an NBC reconnaissance capability to light forces in a manner consistent with their unique mission requirements. Point detection of NBC/industrial toxins will be improved as will stand-off detection and associated early warning.

PROGRAM STATUS

The JSLNBCRS program entered the Concept Exploration and Definition phase in FY95. Entry to the Program Definition and Risk Reduction phase is expected in 2nd Quarter FY98. A production decision is anticipated in FY00. IOC is scheduled for FY02 and FOC in FY05.

❑ The Joint Service Lightweight Integrated Suit Technology (JSLIST)

Program is a Marine Corps lead, joint Service program that transitioned to the production phase in April 1997. Deliveries are currently being made to the Defense Logistics Agency for distribution to the Services. This program was the first consolidated joint Service initiative to go into production. The JSLIST consolidates the individual Service's chemical protective garment developmental efforts to achieve efficiencies and minimize the fielding of different garments. The program seeks technology insertion and competition throughout the production phase. The pre-planned product improvement to this suit is already underway. An International Symposium will be sponsored by the Secretary of Defense and hosted by Marine Corps Systems Command in the Spring of 1998 to address the wide ranging foreign interest in this state of the art ensemble.

❑ The Joint Biological Point Detection System (JBPDs) will provide real-time point detection, warning, and identification of biological agents. The system is currently in the EMD phase. This Army lead program is designed to incorporate block upgrades as technologies emerge with IOC planned for FY01.

❑ The Small Unit Biological Detector (SUBD) is an ongoing Marine Corps developmental initiative aimed at providing the CBIRF with a lightweight, real-time point biological detector. The focus of this program is to develop state-of-the-art detection in a man-portable and eventually hand-held package.

❑ The Joint Warning and Reporting Network (JWARN) Program is a Marine Corps lead program with full participation by the Army, Navy, and Air Force. The JWARN Program will provide uniform integration and analysis of NBC detection information with all Services' C4I2 systems. It will provide a fully automated NBC detection and warning network wherever contributing detectors are employed or when data is provided by analysis from a reliable source. The JWARN Program is a three-phased program:

Phase I: Interim/Standardization (IS) is the initial acquisition and fielding of COTS and GOTS software to standardize NBC analysis software. These capabilities will immediately satisfy many of the required capabilities outlined in the Joint Operational Requirements Document (JORD). Phase I (IS) products will be fielded during FY98.

Phase II: Block Upgrade (BU) will use existing Phase I software as part of the EMD efforts. Phase II BU will be a full and open acquisition strategy and provide the total JWARN capability by integrating NBC detector systems and NBC information management software modules into the Services' C4I2 systems. Phase II BU will be fielded during FY00.

Phase III: Product Improvement Proposal/Program (PIP) will upgrade JWARN communications and software to work with existing detector systems and detector systems currently in development. FOC is scheduled for FY02.

The Joint Chemical Agent Detector (JCAD) is a joint program with the Air Force as the lead Service. The JCAD will provide small lightweight chemical agent detection needs for all Services on multiple platforms, to include aircraft, ships, ground vehicles, cargo, and personnel. A Milestone I/II decision will take place in 2nd Quarter FY98 followed by an EMD contract award. IOC is scheduled for FY02 and FOC is anticipated in FY06.

The Advanced Ground Laser Eye Protection (AGLEP) is a joint program with the Army. The system will provide protection from frequency agile lasers operating within the electromagnetic spectrum. AGLEP will be issued to personnel for specific contingencies and to Marine Security Force personnel. Initial procurement will begin in FY00 with a total quantity of 60,000 to be procured by FY02. The Army will release an RFP and provide a laboratory and field evaluation test plan.

PROCUREMENT PROFILE

To be procured in sufficient quantities to adequately sustain MEFs during extended operations in an NBC environment.

OPERATIONAL IMPACT

Fielded equipment will ensure Marines can fight in all environments. Marines will have the capability to conduct extended operations in an NBC environment.

DEVELOPER/MANUFACTURER:

Principal Design Activity - Natick R&D Engineering Center
Marine Corps Systems Command

Marine Enhancement Program (MEP)

DESCRIPTION

The MEP is a Congressionally-mandated and Service-funded program. Congressional intent is to focus attention on low visibility, low cost programs that typically compete unsuccessfully in the budget, but would otherwise reduce the load, increase the survivability, enhance the safety, and improve the lethality of the infantryman. It is intended that MEP be accomplished with non-developmental, existing prototypes, or commercially available items, which can be quickly tested, evaluated, modified if necessary, and fielded. These initiatives must directly support Marines by improving their quality of life and their combat effectiveness in the field. This program is coordinated with the U.S. Army Soldier Enhancement Program (SEP).

PROGRAM STATUS

Currently the MEP contains 34 individual programs at various stages in the acquisition cycle. The following items are a representation of initiatives being pursued:

The Combat Tent replaces the current shelter half. It is a two-person, three-season, free standing, single-walled tent which incorporates a vapor permeable tent body, waterproof floor, and a detachable, freestanding, waterproof rain-fly. The tent has a vestibule area built into its design for gear storage. The Combat Tent weighs 8.5 pounds. The rain-fly is reversible, with olive drab green on one side and desert tan on the



reverse side. The fly will also provide blackout protection and be adaptable for use independent of the tent body. A contract has been let and initial deliveries to Marine units will begin during February 1998. IOC is 2nd Quarter FY98.

❑ ***The Infantry Combat Boot*** is a replacement for the current combat boot. The infantry combat boot is cooler, lighter, and matches the quality of the best available commercial boot. The infantry combat boot has an improved outer sole for dissipation of shock and greater durability. The new boot was included in the recruit seabag and made available at cash sales for all Marines in November 1997.

❑ ***The Marine Load System (MLS)*** is designed to be a lightweight, modular, load bearing system which will replace the ALICE pack and current load bearing vest. The MLS consists of a main pack with frame, patrol pack, load bearing vest with equipment belt, and modular pouches. The design permits the individual to mission tailor his fighting load by adding or removing pouches and packs. A unique ergonomic design permits most of the weight of the load to be borne on the wearer's hips. This design reduces the burden on a Marine's shoulders and back to lessen muscle fatigue and heat stress. The MLS will be compatible with the new family of body armor. IOC is 4th Quarter FY98.

❑ ***The Family of Body Armor*** consists of an inconspicuous soft armor vest, an outer fragmentation vest, and two ballistic plate inserts that fit into the outer vest. The total system weighs no more than 30 pounds. The soft armor vest is worn under the battle dress utilities and provides protection from small caliber handguns. The outer fragmentation vest offers protection equal to the current Personal Armor System Ground Troops (PASGT) vest. It provides better durability and contain removable armor inserts. It is front opening and has modular components that protect the throat, neck, and groin areas. It incorporates both a front and back ballistic plate insert. The ballistic plates weigh no more than 5 pounds each. The system offers increased protection and weighs 20 percent less than the current body armor. IOC is 4th Quarter FY98.

Non-Lethal Weapons (NLW) Capability Set

DESCRIPTION

The NLW Capability Set is a well-rounded, versatile NLW package comprised of COTS and GOTS equipment and munitions. It is intended to enhance the MAGTF commander's ability to conduct operations across the spectrum of conflict. Additionally, it will assist in countering a variety of threats in situations where the Rules of Engagement (ROE) limit options on the use of deadly force. It is designed to thoroughly equip a 200-man reinforced infantry company with a variety of NLWs. In addition to meeting contingency requirements, the NLW Capability Set fulfills training requirements by providing limited sustainment training ammunition and appropriate sustainment training equipment. NLWs are divided into four distinct categories: personnel protectors; personnel effectors; mission enhancers; and training devices.

(a) Personnel protectors include face and riot shields which protect the individual Marine from blunt trauma injuries inflicted by thrown objects, clubs, etc.

(b) Personnel effectors include riot batons, stingball grenades, pepper sprays, and kinetic rounds designed to, at a minimum, discourage, or at most, to incapacitate individuals or groups.

(c) Mission enhancers include bullhorns, combat optics, spotlights, and caltrops designed to facilitate target identification and crowd control. Additionally, these items provide a limited ability to affect vehicular movement.

(d) Training devices include those items such as training suits, batons, and inert pepper sprays. They are designed to facilitate realistic, hands on scenario training in preparation for operations.

OPERATIONAL IMPACT

The NLW Capability Set provides the Marine Corps with a near term capability for effectively controlling the nontraditional battlefield, within the constraints levied by ROE, by mitigating casualties and minimizing collateral damage.

PROGRAM STATUS

The Marine Corps partially fielded fourteen NLW Capability Sets during FY97. During the 3rd Quarter FY98 the NLW munitions and oleoresin capsicum will be fielded for all fourteen sets. Fielding of ten additional capability sets will begin in FY00. These ten sets will mirror the fourteen sets already fielded but will be "enhanced" with seven other joint non-lethal programs to be fielded across the Future Years Defense Program (FYDP).

Defense Messaging System (DMS)

DESCRIPTION

DMS is a DoD-mandated joint program to integrate the Automated Digital Network (AUTODIN) and E-mail functions of the Defense Information Systems Network into a single, secure DoD message communication system. The system consists of computer hardware and software, procedures, standards, and personnel used to electronically exchange messages between organizations and individuals within DoD. DMS will provide all current E-mail and AUTODIN functionality with the addition of secure networking.

OPERATIONAL IMPACT

DMS, as a replacement for AUTODIN, will provide organizational messaging for all the Services and agencies of the DoD. DMS will also be implemented in the tactical environment in conjunction with the fielding of the TDN. DMS is a critical component of the DII and supports C2, administration, and intelligence information exchange to enhance readiness and warfighting capabilities. DMS will also unify all of the DoD under a common E-mail system providing secure networking (Unclassified, Secret, Top Secret, and Special Compartmented Information (SCI)) and organizational messaging from the desktop.

PROGRAM STATUS

A Major Automated Information Systems Review Council III decision was reached in September 1997 allowing DMS to proceed toward IOC. As a COTS-based system, product evolution will continue even as widespread fielding throughout DoD has begun.

DEVELOPER/MANUFACTURER

Lockheed Martin Federal Systems, Manassas, VA

Training Systems and Devices

DESCRIPTION

The development of basic individual skills, combined with challenging individual and collective sustainment training, is essential especially during peacetime. Realistic training systems and standards-based and performance-oriented training are used to enhance combat readiness. The Marine Corps is continuing to explore and field a number of new systems and simulators that will contribute significantly to training effectiveness while reducing overall training costs.

The Indoor Simulated Marksmanship Trainer (ISMT) is an interactive video marksmanship simulator. It provides enhanced marksmanship skills training for the following weapons: M16A2, M9, M-249, M240G, M-2, MK19, AT4, SMAW, M203, MP5, shotgun, and 60mm and 81mm mortars. The ISMT is a classroom simulator that provides four firing positions. The Infantry Squad Trainer (IST) is an expanded version of the ISMT that provides 12 firing positions. The systems provide realistic training scenarios that replicate marksmanship and weapons training standards, collective training, and judgmental shoot/no-shoot situations. Additional capabilities include forward observer (FO) training, night vision devices firing, and a shoot-back mechanism that is MILES compatible. In FY98, Marine Security Guard training will be enhanced with the fielding of additional ISMT procurements that will complete the acquisition objective of 528 ISMTs and 25 ISTs. FOC will occur in FY02.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity: ISMT</i>	87	0
<i>IST</i>	0	0

DEVELOPER/MANUFACTURER

Firearms Training Systems (FATS)

The Multiple Integrated Laser Engagement System (MILES) 2000 is the next generation of MILES equipment. It consists of a family of low-power laser devices simulating the direct fire characteristics of weapons organic to a battalion. MILES 2000 provides the capability to conduct realistic reinforced battalion-size, force-on-force engagements. MILES 2000 will allow for longer operating time, exercise feedback, more realistic weapons' effects. Additionally, MILES 2000 will utilize a MILES Target Interface Device which will make MILES interoperable with RETS and PITS ranges. IOC will occur in FY98 with FOC in FY99.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	1*	0

**Battalion sets*

DEVELOPER/MANUFACTURER

MILES 2000 - Cubic Defense Systems

The Tank Weapon Gunnery Simulator System (TWGSS) and

Precision Gunnery System (PGS) are MILES compatible, precision gunnery devices for the M1A1 and LAV-25 respectively. These devices use retro reflectors and a scanning laser that replicate the actual trajectory and ballistics of a round being fired. FOC for the PGS will occur in FY98.

The above systems all include an in-depth, after-action review.

PROCUREMENT PROFILE:

FY98

FY99

Quantity:

*0**

0

**Precision Gunnery Sets*

DEVELOPER/MANUFACTURER

TWGSS/PGS - Saab Training Systems

The MAGTF Tactical Warfare Simulation (MTWS) is a computer-

assisted warfare gaming system to support the training of Marine Corps commanders and their staffs. MTWS will support command post exercises (CPXs) in which maneuver forces, supporting arms, and the results of combat are modeled by the system. MTWS is used in field exercises (FEXs) in which all or part of the combat forces are actual military units. During a FEX, the system is used to record and monitor the actions of live forces rather than simulating those actions as during a CPX.

MTWS provides a full spectrum of combat models required to support Marine Corps exercises. The major functional areas are ground combat, air operations, fire support, ship-to-shore, combat service support, combat engineering, and intelligence. The system provides limited play in EW, communications, and NBC warfare.

MTWS has been fielded to each MEF, MCB Quantico, and to the Marine Corps Air-Ground Combat Center (MCAGCC) to replace the Tactical Warfare Simulation Evaluation and Analysis System (TWSEAS). MTWS with the v1.5 software contains enhanced functional capabilities in all domains (land, air, and sea). In addition, v1.5 contains an initial C4I interface with TCO, IAS, and IDASC through the JMCIS protocol.

PROCUREMENT PROFILE:

FY98

FY99

Quantity:

*5**

*1**

**Software Packages*

DEVELOPER/MANUFACTURER

Visicom Lab, San Diego, CA

The Combat Vehicle Appended Trainer (CVAT) is a deployable, high fidelity, full-crew, precision gunnery, networked tactical trainer that supports the M1A1, LAV-25, and the AAV. CVAT will satisfy the Marine Corps requirement for the creation of a synthetic battlefield to include ground forces and C3I for individual crew training, as well as maneuver and tactics training up to and including the platoon level. CVAT will incorporate the actual operational weapons platform into the training system, thus allowing the Marines to train as a full crew in their combat vehicles. IOC will occur in FY02 and FOC is anticipated in FY06.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

DEVELOPER/MANUFACTURER

TBD

The Remoted Engagement Target System (RETS) is an automated system of pop-up stationary and moving targets for infantry, armor, and anti-armor training. The system offers computer-driven programmed tactical scenarios or it can be operated in a manual mode with group or individual targets raised on command. RETS will significantly enhance the capability to train individual Marines, crew-served weapons teams, small units, and combat vehicle crews in the employment of their weapon systems under the most realistic combat conditions possible. Thirteen of the total acquisition objective of 40 have been installed to date; seven more are in process. FOC is anticipated in FY05.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

DEVELOPER/MANUFACTURER

Lockheed Martin (Huntsville, AL)

The Precision Gunnery Training System (PGTS) provides precision gunnery training via simulation for the TOW and Dragon missile systems. The system is a video disc/computer-based system that provides training scenarios for real-time missile trajectory simulation, visual and aural effects, performance feedback, and evaluation. The instructor station for the 37 (indoor) TOW missile training systems are being modified to greatly increase functionality, reliability, and maintainability. In conjunction with this effort, 43 additional indoor TOW and 14 Field Tactical Trainers (FTT) of the TOW variant are being manufactured and delivered to meet current training needs.

PROCUREMENT PROFILE:**FY98****FY99**

<i>Quantity: TOW Indoor (GT)</i>	72	0
<i>TOW Rehost</i>	0	37
<i>TOW FTT</i>	4	0
<i>LAV-AT FTT</i>	0	3

DEVELOPER/MANUFACTURER

Universal Systems & Technology, Inc

SIMTECH, Holon, Israel (Indoor)

Lockheed Martin, Solartron Systems, Hertfordshire, England
(Outdoor) ***The Light Armored Vehicle-Full-Crew Interactive Simulator Trainer***

(LAV-FIST) is an interactive, graphics based, appended precision gunnery training system. It trains crews on a wide range of gunnery tasks in a stationary, powerless vehicle. Sensors permit crews to use actual vehicle controls to simulate target engagement and movement over terrain. It has targets, high-resolution scenery, and visual effects presented through video monitors appended to vehicle vision apertures. An instructor/operator manages training and provides after-action review. The LAV-FIST will be fielded to the Reserve forces only. FOC will occur in FY98.

PROCUREMENT PROFILE:**FY98****FY99**

<i>Quantity:</i>	0	0
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DEVELOPER/MANUFACTURERUniversal Systems & Technology, Inc., Winter Park, FL,
Raydon Corp., Daytona Beach, FL**OPERATIONAL IMPACT**

Training devices and simulators are a proven and cost-effective means for training Marines. They enhance training by increasing the rate of skill acquisition, progression, and sustainment. Realism is enhanced by offering a wide variety of tactical scenarios and situations that cannot be safely replicated on live-fire ranges and facilities. Simulators are particularly beneficial to forward-deployed forces aboard ship, or where maintaining perishable skills is difficult. The use of simulators and training devices supports our total force training strategy by providing effective training alternatives to Marine Reserve units located where major bases and range systems are not available.

Distance Learning - Marine Corps Learning Network (MarineNet)

DESCRIPTION

MarineNet is a Marine Corps-wide, distributed Intranet supported by Video Teletraining (VTT) that will enable Marines to learn via the appropriate interactive media. MarineNet is composed of electronic Distance Learning (DL) courseware, hardware, software, and network components necessary to distribute electronic instruction over enterprise wide, metropolitan, and local area networks. The scope of MarineNet is three-fold. First, is to develop world-class Interactive Multimedia Instruction (IMI). Second, is to deliver IMI to any computer workstation meeting the Marine Common Hardware Suite (MCHS) base-line that is also connected to the enterprise network. Third, is to provide a dedicated VTT capability to support the training and education of Marines. The following describes the components of MarineNet from the Corps level to the system's interface with individual Marines:

- Distance Learning Center (DLC)** - The Marine Corps Institute, as the DLC, provides Marine Corps-wide standardization, certification, and quality control for all DL courseware.
- Functional Learning Center (FLC)** - The formal schools will serve as FLCs and will manage all electronic DL courses related to their functional areas of expertise.
- Area Learning Center (ALC)** - The ALC is the primary base-level/site metropolitan area network for delivering DL courseware to Marines.
- Learning Resource Center (LRC)** - The LRC is the primary location to access DL courseware for those Marines who do not have access to computer workstations.
- Deployable LRC** - The deployable LRC will provide operational units with the capability to access DL resources while deployed.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	0	0

OPERATIONAL IMPACT

Distance learning will allow the Marine Corps to keep pace with our rapidly expanding education and training needs.

PROGRAM STATUS

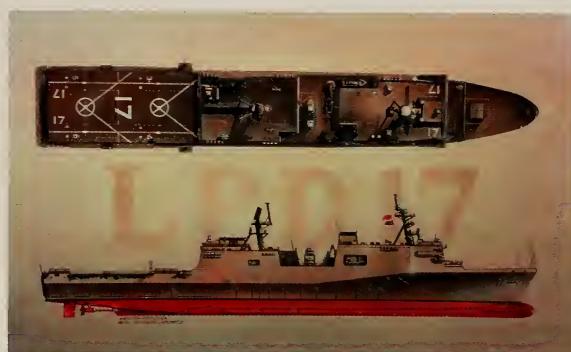
Pilot program will commence in FY99. IOC and FOC are scheduled for FY02 and FY05, respectively.

DEVELOPER/MANUFACTURER: TBD

U.S.S. San Antonio Class LPD 17

DESCRIPTION

The U.S.S. San Antonio Class LPD 17 is a newly designed amphibious ship providing large lift capacity for the execution of OMFTS. In addition, it significantly enhances the operational flexibility of a three ship Amphibious Ready Group. It will carry 720 Marines, have a vehicle stowage capacity of 25,000 square feet, a well deck sized for 12 AAVs and two LCACs or 30 AAVs, and a flight deck for the simultaneous operation of two CH-53E Super Stallions, two MV-22 Osprey tiltrotor aircraft, or four CH-46 Sea Knight helicopters. This ship class is optimized for size, flexibility, and economy.



PROCUREMENT PROFILE:

FY98

Quantity:

1

FY99

2

OPERATIONAL IMPACT

Continued emphasis on forward presence and rapid deployment by naval expeditionary forces increases the importance of amphibious lift assets. To overcome amphibious lift shortfalls caused by the decommissioning of aging LPDs, LSTs, LKAs, and LSDs, the San Antonio Class LPD will augment the versatility of the LHD and LHA carriers with its well deck and flight operations capability. The San Antonio Class program continues the comprehensive effort to provide sufficient amphibious lift, especially vehicle lift capacity, for Marine expeditionary forces.

PROGRAM STATUS

The 1990 DON Integrated Amphibious Operations and Marine Corps Air Support Requirements Study reaffirmed the San Antonio Class requirement. In 1990, the MNS was validated and the Defense Acquisition Board approved Milestone 0. Preliminary design work was completed in 1993, and was followed by commencement of contract design. The contract for the lead ship was awarded in 1996. Initial delivery is scheduled for FY02.

DEVELOPER/MANUFACTURER

Avondale Industries

P-19A Crash, Fire, and Rescue (CFR) Vehicle Rebuild Program

DESCRIPTION

The Marine Corps has used the P-19A variant as its sole Crash, Fire, and Rescue (CFR) vehicle since the mid-1980s. While the P-19A has provided excellent service, it has started to experience combat readiness problems as it approaches its EUL. To correct this readiness problem and maintain a vital aircraft CFR capability, a three-year program to rebuild the P-19A will begin in 1998.

PROCUREMENT PROFILE:	FY98	FY99
<i>Quantity:</i>	39	49

OPERATIONAL IMPACT

The P-19A is critical to the Marine Corps airfield operations across the operational spectrum. The MAGTF requires a firefighting truck to: accomplish its expeditionary airfield operations; provide rescue protection for Aviation Combat Element aircraft; and, provide structural firefighting protection for related tactical airfield facilities.

PROGRAM STATUS

The P-19A program was designated an Acquisition Category (ACAT) IV(M) Minor Upgrade program in 1996. A combined Milestone I/III Acquisition Decision Memorandum (ADM) was signed in 1996. Defense Construction Supply Center (DCSC) Columbus, OH, will award a contract for the P-19A Rebuild program during 2nd Quarter FY98.

DEVELOPER/MANUFACTURER

TBD

Improved External Lift Device (IELD)

DESCRIPTION

The Improved External Lift Device (IELD) consists of a triangular shaped chrome-moly steel frame capable of transporting up to 27,000 lbs of cargo. The frame has three hooks integrated into its design, thus allowing one helicopter to transport cargo to three separate locations during one flight sortie. Each hook has a rated load capacity of 9,000 lbs. The hooks are capable of independent and/or group manual or electrical release from the helicopter. The IELD itself is attached to a standard external pendant which is hooked to the existing external hook on the helicopter. The Marine Corps Warfighting Laboratory experimented with and evaluated this concept and device during the recent *Hunter Warrior* exercises.



PROCUREMENT PROFILE:

TBD

OPERATIONAL IMPACT

Increases efficiency and productivity of helicopter flight time when conducting resupply missions. Maximizes helicopter external weight capacity by enabling it to carry multiple small loads.

PROGRAM STATUS

The IELD will undergo testing to obtain a flight clearance at Naval Air Warfare Center (Aircraft Division), Patuxent River, Maryland. Field evaluation is anticipated during the 4th Quarter FY98.

DEVELOPER/MANUFACTURER

Prototype - Skyhook Technologies West Draper, UT

Joint Military Intelligence Program (JMIP)

The JMIP, established in 1995, improves the oversight of selected DoD intelligence programs and resources under the Deputy Secretary of Defense. The JMIP consists of the following three component programs:

- Defense Cryptologic Program (DCP)***
- Defense Imagery and Mapping Program (DIMAP)***
- Defense General Intelligence and Applications Program (DGIAP)***

and the following DGIAP sub-component programs:

- Defense Airborne Reconnaissance Program (DARP)***
- Defense Intelligence Counterdrug Program (DICP)***
- Defense Intelligence Tactical Program (DITP)***
- Defense Space Reconnaissance Program (DSRP)***
- Defense Intelligence Special Technology Program (DISTP)***

The JMIP funds the RDT&E and procurement associated with the Marine Corps JSIPS National Input Segment (NIS) at Camp Pendleton, CA, and the Common Imagery Ground/Surface System (CIGS) TEG development in the DARP. The NIS, operated by the Marine Corps Imagery Support Unit (MCISU), became fully operational in 1996. The DARP also funds the Unmanned Aerial Vehicles (UAV) system RDT&E and procurement to include the Marine Corps Pioneer and the Tactical UAV programs. Although in Navy funding, the DARP has provided the RDT&E and procurement dollars for the ATARS. The Marine Corps will receive thirty-one ATARS for use on the F/A-18D aircraft.

DCP RDT&E funding has led to marked improvements in the tactical SIGINT collection and processing capabilities of the Marine Corps. DCP investment led to fielding and/or improvements to the TPCS, TCAC, and MEWSS. Under the Radio Battalion Modernization and Concept Exploration project, DCP RDT&E investment improved radio direction-finding capability, special intelligence communications, and signal intercept capability. The fielding of 18 sets of RREP-SS-1 will occur in FY98 through RDT&E funds provided by the DCP and a \$2.7 million Congressional procurement plus-up to the Marine Corps.

JMIP support to the Marine Corps also funds for pay and allowances, travel, and per diem for Marine Corps Reserve intelligence personnel to augment and support CINCs, CINC-supported exercises and activities, and other joint production and exercise functions.

National Foreign Intelligence Program (NFIP)

The NFIP is composed of 12 programs and the CIA Retirement and Disability System (CIARDS). These NFIP programs are not organizational but rather financial accounts that provide funding for intelligence operations and activities. The Marine Corps participates directly in three component programs of the Director of Central Intelligence sponsored NFIP:

Consolidated Cryptologic Program (CCP): The CCP provides for Marine Corps participation in the United States Cryptologic System. The Marine Support Battalion, working in concert with the National Security Agency and the Naval Security Group, supports the worldwide SIGINT and INFOSEC needs of national decision makers and operational commanders. These Marines routinely augment MAGTFs in direct support of expeditionary forces, such as in Bosnia, and in joint exercises.

General Defense Intelligence Program (GDIP): The GDIP funds Service and Defense Intelligence Agency (DIA) distributed production functions of the Marine Corps Intelligence Activity (MCIA). It also provides Marine Corps participation in the Defense HUMINT Service (DHS), on CINC staffs and in the Joint Intelligence/Joint Analysis Centers (JIC/JAC) at USPACOM, USACOM, USSOUTHCOM, USCENTCOM, and USEUCOM. GDIP provides augmentation pay for Marine Corps Reserve personnel performing intelligence duties at the national and theater level. To date, FY98 GDIP funds have provided over 3,000 man-days of Reserve intelligence support.

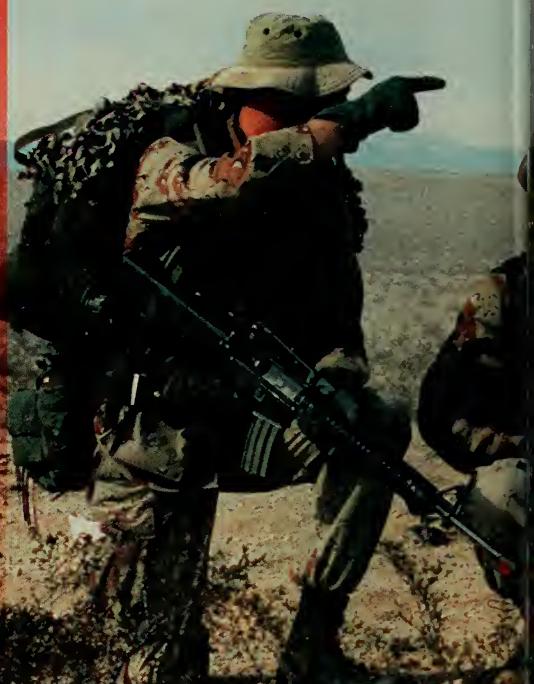
Foreign Counterintelligence Program (FCIP): The FCIP provides for the Marine Corps participation in DON counterintelligence activities through the Naval Criminal Investigative Service.

The NFIP allocates resources to support reimbursable or direct costs and compensation for over 900 Marines and Marine Corps civilian personnel as well as fund-limited Operations and Maintenance activities.

Chapter

Fiscal Resource Overview

Naval and expeditionary in character, the Marine Corps serves as the Nation's force-in-readiness -- the force that is the most ready when the Nation is the least ready. Maintaining this readiness posture will involve the prudent allocation of resources and risk management. The Marine Corps FY99 budget fully supports the goals and objectives established by the QDR. The QDR confirmed the Marine Corps to be a lean fighting force, with little room for further restructuring. Personnel end strengths through the future years defense program have been reduced by 1,800 Active Component, 4,200 Reserve Component, and 400 civilian personnel. The QDR also recognized the need to stem the historical migration from modernization accounts into operations and support. This budget deals with this by fully financing operating forces and essential operations and support costs as well as providing for increased modernization funding.



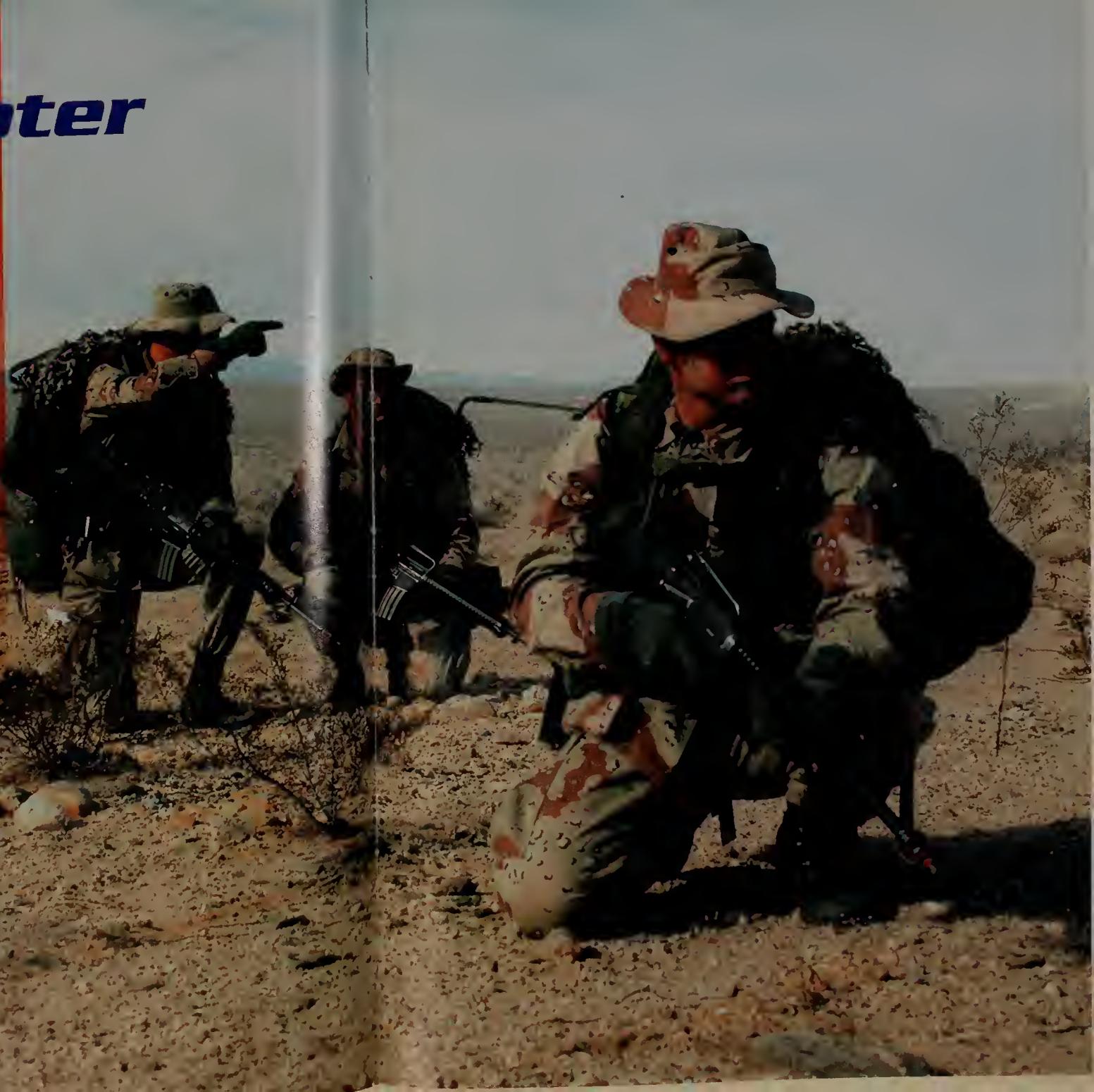


5 Chapter

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The FY99 budget continues to place a high priority on near-term readiness by financing manpower, training and operating forces support. While near-term readiness is sustained and procurement improves, shortfalls in infrastructure remain. Funding for real property maintenance, military construction and family housing at our bases and stations continues to be extremely austere, and does no more than minimize the deterioration of our facilities.

This budget initiates a reversal of the past years' historical low levels of modernization funding. The FY99 budget request for ground equipment is approximately 50 percent above the FY98 appropriated level, allowing the start of major ground recapitalization initiatives such as:

Lightweight 155mm Howitzer, the replacement for our almost twenty year old, well-worn M-198 Howitzer;

Medium Truck Vehicle Replacement (MTVR), medium truck fleet upgrade for our almost twenty year old 5-ton trucks;

Light Tactical Vehicle Replacement (LTVR), a lightweight truck fleet upgrade for our aging HMMWV;

Javelin, our medium range, man-portable, antitank weapon; and

Upgrades to C4I systems, allowing for improved battlefield command and control.

While in the outyears this budget approaches the historical average level of funding needed to sustain a ready, capable Corps in the next century, it will take years to recover from the cumulative effect of unprecedented low levels of procurement for the majority of this decade.

It remains imperative to attain and maintain a competitive edge over future adversaries. Limited resources has forced Marine Corps research and development funding to be highly selective, emphasizing the leverage provided by advanced science and technology in warfighting applications. Key research and development programs include:

Advanced Amphibious Assault Vehicle (AAAV), the replacement for the venerable, but maintenance intensive Amphibious Assault Vehicle (AAV) which is approaching thirty years of age; and,

Marine Corps Warfighting Lab which will ensure the operational relevance of the Marine Corps in the next century by helping bridge the gap between today's and tomorrow's capabilities.

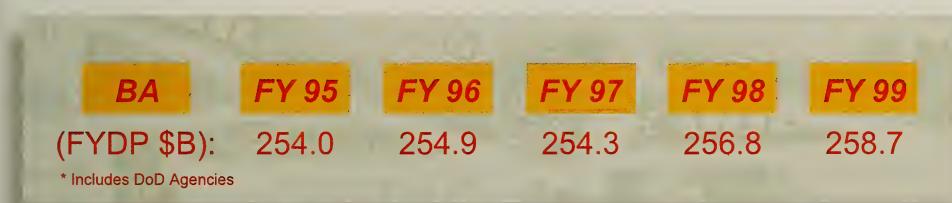
Through continued judicious application of fiscal resources, and careful planning and management, the near-term readiness of the Marine

Corps will continue to be maintained at high levels. This will become an increasingly difficult challenge as the impact of years of underfunding the modernization accounts forces the Fleet Marine Forces to maintain and utilize antiquated equipment. At a minimum, it is essential that future projected levels for Marine Corps modernization accounts be sustained. Unfortunately, given projected top line trends, significant resource deficiencies to sustain the physical plant at Marine Corps bases and stations remain. If the Corps is to remain the Nation's expeditionary force in readiness in the next century, these resource deficiencies must be addressed. This chapter reviews the FY99 Department of Defense (DoD) Budget resources allocated to the Marine Corps.

Fiscal Resources

Funds to support the new defense strategy are programmed, budgeted, authorized, appropriated, obligated, and finally expended to cover Service investment and operational requirements. Total Obligational Authority (TOA) refers to the total financial resources available. Budget Authority (BA) refers to financial resources appropriated by Congress. The DoD Planning, Programming, and Budgeting System establishes procedures for the allocation of DoD TOA. Figure 5-1 displays the BA for all of DoD from FY95 through the FY99 Budget request.

FIGURE 5-1: BUDGET AUTHORITY*



There is a general perception that defense spending has increased over the past few years. As can be seen in Figure 5-2, the opposite is true. The FY99 Budget requests \$258.7 billion in budget authority for the Department of Defense. This continues the real decline in defense spending begun in 1986. In real terms, the FY99 Budget is 34 percent below that of FY85, the peak year for DoD budget authority since the Korean War.

FIGURE 5-2: DDD BUDGET AUTHORITY TREND* (\$B)



Viewed in broader terms, defense spending as a percentage of total Federal spending has also decreased. Defense spending as a share of our total outlay is near its lowest point in 30 years. This trend is depicted in Figure 5-3.

FIGURE 5-3: BUDGET TRENDS

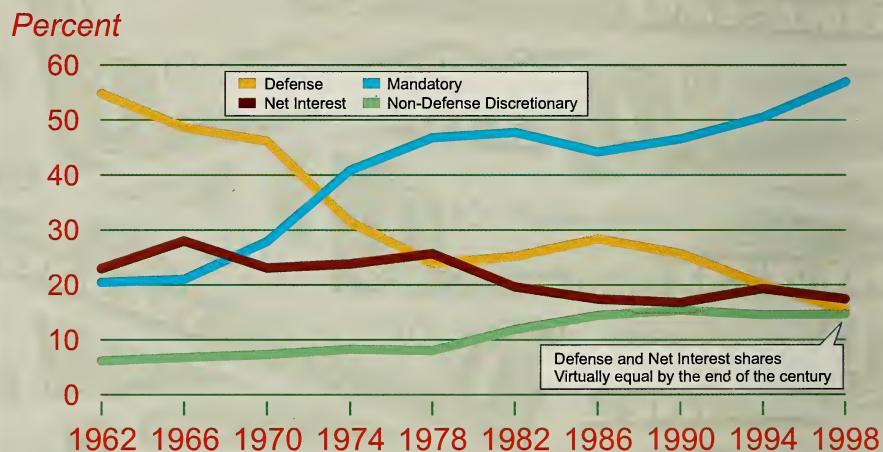


Figure 5-4 is a comparison of the relative amount of resources provided to each Service. Although the Marine Corps share is

comparatively small, it leads the DoD in converting every dollar into credible combat power.

FIGURE 5-4: SERVICE COMPARISON OF TOA IN THE FY99 DOD BUDGET* (FYDP \$B)

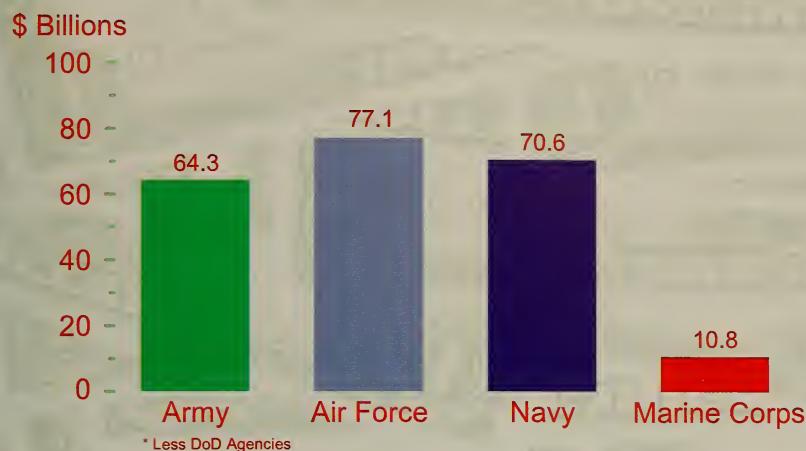
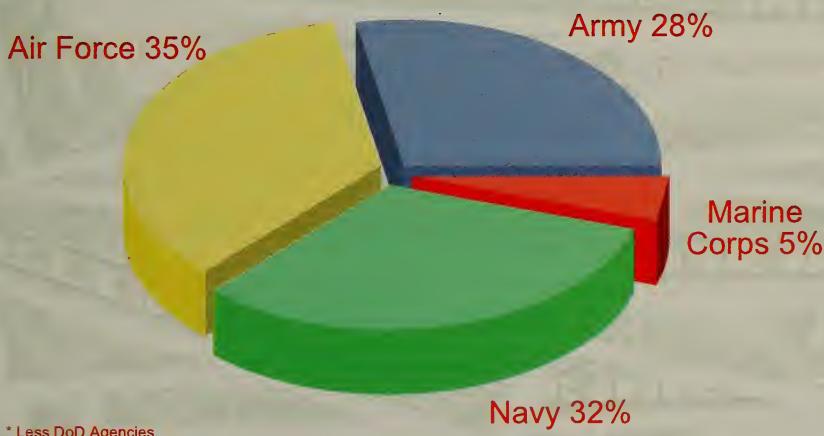


Figure 5-5 depicts the percentage of DoD funds budgeted by each Service. Each Service's TOA is subsequently divided into appropriations. With approximately 5 percent of DoD's budget, specifically in the Marine Corps account, we provide 12.2 percent of the military personnel and 13.6 percent of general purpose combat forces.

FIGURE 5-5: DOD TOA FY99 BY SERVICE*



Appropriations

An appropriation is the legal apportionment by an act of Congress to incur obligations for specified purposes and to make payments from the Treasury of the United States. Funds may be expended only for the purpose appropriated. The following are Marine Corps appropriation categories, with a brief synopsis of what each provides:

- Military Personnel, Marine Corps (MPMC)*** - Active and retired pay, allowances, individual clothing, interest on deposits, expenses for organization movements, expenses for temporary duty, travel between permanent duty stations, and subsistence.
- Reserve Personnel, Marine Corps (RPMC)*** - Pay, allowances, clothing, subsistence, gratuities, travel, and related expenses for personnel of the Marine Corps Reserve.
- Operation and Maintenance, Marine Corps (O&MMC)*** - Expenses for support of the FMF, equipment and facilities maintenance, civilian employee pay, travel and transportation, training, consumable supplies, recruiting and advertising, base operations, and base communications.
- Operation and Maintenance, Marine Corps Reserve (O&MMCR)*** - Expenses for operation and maintenance, including training, organization, and administration, repair of facilities and equipment, hire of passenger motor vehicles, travel and transportation, recruiting and advertising, base operations, and communications for the Marine Corps Reserve.
- Procurement, Marine Corps (PMC)*** - Expenses for the purchase and manufacture of guided munitions, tracked combat vehicles, guided missiles and equipment, communications and electronics, support vehicles, engineer and other equipment, spares, and repair parts.
- Procurement of Ammunition, Navy and Marine Corps (PANMC)*** - Expenses for the purchase and manufacture of ammunition, to include all unguided munitions. (Prior to FY98, the Marine Corps ammunition budget was submitted as BA-1 of the PMC budget.)

The following Navy appropriations include functional areas for which the Marine Corps programs and budgets. The complete Marine Corps TOA includes both Marine-unique appropriations described above, as well as resources from the following appropriations:

- Military Construction, Navy (MILCON)*** - Acquisition, construction, and installation of permanent public works, naval installations, and facilities for the Navy and the Marine Corps.

Family Housing, Marine Corps (FHMC) - Construction,

improvements, operation, maintenance, repair, and design of Marine Corps housing and ancillary facilities required at bases and stations.

Military Construction, Navy Reserve (MCNR) - Construction,

acquisition, expansion, rehabilitation, and conversion of facilities for the training and administration of the Reserve components of the Navy and Marine Corps.

Research, Development, Test, and Evaluation, Navy (RDT&E, N) -

Research, development, test, and evaluation in the areas of basic research and technology development, advanced technology development, strategic and tactical programs, intelligence and communication programs, and overhead and support costs of the Marine Corps RDT&E effort.

Figure 5-6 displays the TOA allocated to each of these appropriations. As indicated, while R&D and O&MMC show steady increases and PMC substantially improved over the low of FY97, this has been at the expense of MILCON and FHMC. These trends reflect the Marine Corps' difficulty in improving modernization while maintaining readiness.

FIGURE 5-6: MARINE CORPS TOA (FYDP \$M)

	FY97	FY 98	FY99
MPMC	5,976	6,113	6,272
RPMC	393	392	402
O&MMC	2,352	2,380	2,524
O&MMCR	110	116	115
PMC	581	473	746
PANMC	132	125	147
RDT&E, N (Grnd)	266	268	306
MILCON	157	180	108
FHMC	267	232	185
MCNR	6	11	5
Total	10,240	10,290	10,810

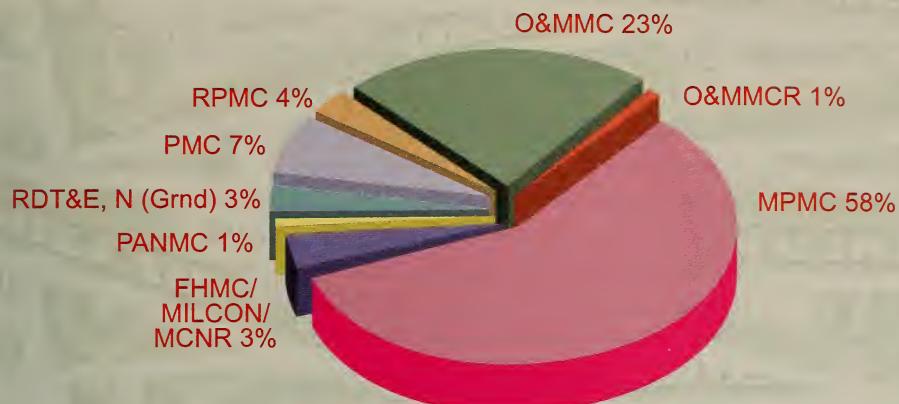
Figure 5-7 depicts Marine Corps TOA trends since FY92 in constant dollar terms. This data reveals the total impact of reduced spending over time. The Marine Corps, in constant dollar terms, has absorbed a 10.7 percent reduction in resources since 1992. Further reductions will severely affect the Fleet Marine Force (FMF) and our ability to maintain ready forces in support of the National Military Strategy.

FIGURE 5-7: TOTAL OBLIGATIONAL AUTHORITY (FY99 CONSTANT DOLLARS)



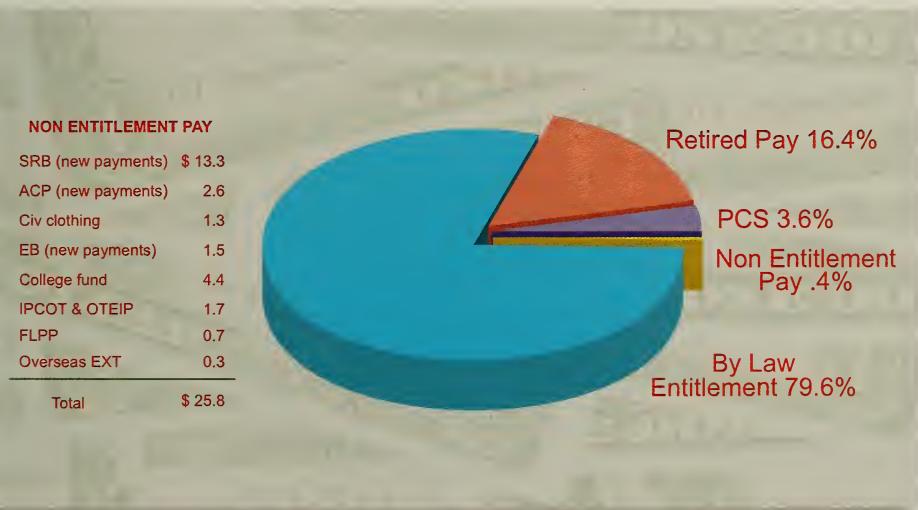
USMC FY99 TOA by Appropriation

The largest elements within the Marine Corps' current budget request are the manpower appropriations and the operation and maintenance accounts. They support our military personnel, readiness, and operations programs. Figure 5-8 shows that, combined (active and reserve), these appropriations make up 86 percent of the Marine Corps FY99 Budget. Marine Corps' procurement and research and development appropriations account for about 11 percent of the budget request. They support key modernization programs which are critical to the Marine Corps success on future battlefields.

FIGURE 5-B: USMC FY99 TOA BY APPROPRIATION

❑ MILITARY PERSONNEL, MARINE CORPS (MPMC) BUDGET

The Marine Corps Manpower budget is our largest appropriation. The vast majority of it goes to by-law entitlements as shown in Figure 5-9.

FIGURE 5-9: MILITARY PERSONNEL FY99 BUDGET (FYDP \$M)

The nondiscretionary portions of this appropriation represent compensation for our Marines as authorized by Congress. As identified by both the Marine Corps and the combatant CINCs, adequate

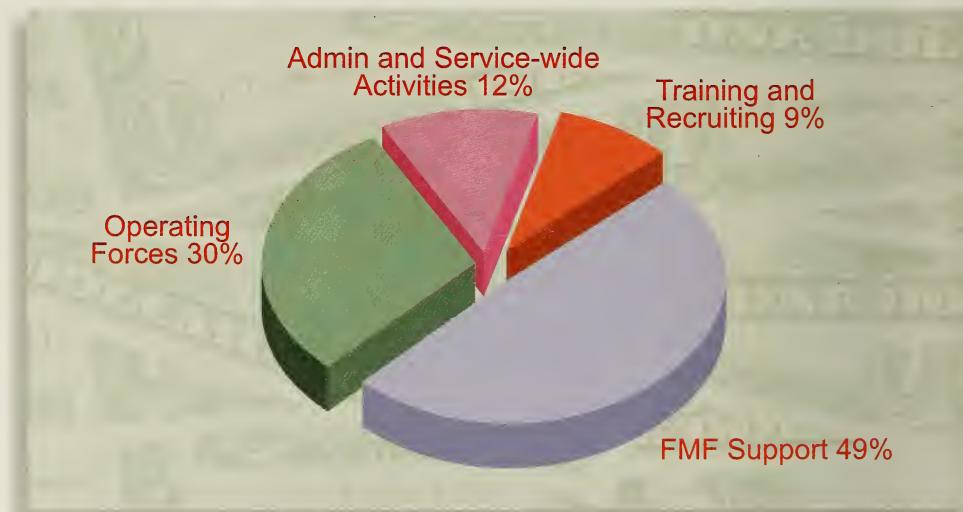
compensation is the most important of all quality of life issues. Small discretionary programs (Selective Reenlistment Bonus, Aviation Continuation Pay, Enlistment Bonus, and College Fund) are modest investments which reap large dividends. These programs help the Marine Corps shape its force properly through recruiting and retention and save the taxpayer money through reduced training costs.

Two other categories of funding, Permanent Change of Station (PCS) and Subsistence in Kind (SIK), provide essential support to our mission. The PCS funding provides for accession, separation, and operational and rotational moves. Funding in this area allows the Marine Corps to support the professional development of our Marines. Subsistence provides the basic function of feeding our Marines both in garrison and the field.

□ *OPERATION AND MAINTENANCE, MARINE CORPS (O&MMC) BUDGET*

The O&MMC budget request of \$2.5 billion represents, in real terms, an increase of about 0.3 percent over FY98 after discounting the transfer of resources to fund the Marine Corps share of the operating costs of the Defense Commissary Agency. This increase was applied principally to quality of life requirements.

FIGURE 5-10: OPERATION AND MAINTENANCE BY MAJOR ACTIVITY



The O&MMC account is a crucial component of our overall readiness. This budget will support a FMF of three active divisions and associated support and combat service support elements, station and Marine-unique support for three aircraft wings and the operation and maintenance of training bases, logistics functions, and administrative activities.

The budget includes support, at minimally acceptable levels, for the operating forces of the Marine Corps, to include continuation of the fielding of improved equipment for the individual Marine. The budget also finances the continuation of investment in outsourcing and privatization studies, and contains funding to maintain an acceptable level of depot maintenance unfunded backlog. As a result of the initiation of the AAV Reliability and Maintainability (RAM)/Rebuild program, the depot maintenance program financed in the Operation and Maintenance account no longer includes the AAV Inspect and Repair Only As Necessary (IROAN) program. This is now funded in the PMC account. This budget fully finances requirements for recruit training, initial skill training and follow-on training courses, and continues support of recruit accession goals and the expanded recruit advertising campaign.

A major portion of FMF support covers the areas of base operations and maintenance of real property. While essential levels of base operations consistent with prior years' experience have been financed, fiscal constraints have precluded necessary investment in maintaining plant property at Marine Corps bases and stations. Backlog of maintenance and repair continues to grow in every year, approaching \$1 billion in FY02.

Our budget continues to support the Maritime Prepositioning program through replenishment, modernization, and replacement of equipment during the MPS maintenance cycle. Also funded under this appropriation is the transportation of materiel to and from Marine Corps logistics bases.

The budget also supports the stand-up of Marine Corps Air Station, Miramar, while financing minimal levels of base operating support at Marine Corps Air Stations El Toro and Tustin, until these bases close in FY99. The funding of Marine Corps operations provides highly ready forces to respond to the full spectrum of crises by providing appropriately sized, positioned, and mobile forces for joint or independent operations.

The O&MMCR account supports a Marine Reserve Force that includes the Fourth Marine Division, the Fourth Marine Aircraft Wing, the Fourth Force Service Support Group, and the Marine Corps Reserve Support Command. The budget reflects planned QDR reductions, and support costs for Reserve end-strength. The budget also continues

increased funding for environmental programs and provision of initial issue equipment.

PROCUREMENT, MARINE CORPS (PMC), PROCUREMENT OF AMMUNITION, NAVY AND MARINE CORPS (PANMC), AND RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, NAVY, (RDT&E, N)

The FY99 Budget for the Corps maintains readiness and supports a significant turnaround in modernization at the expense of essential infrastructure improvements -- reflecting the difficult choices forced by constrained resources. Figure 5-11 shows that since 1991, funding for procurement has fallen short of the steady state value of \$1.2 billion needed annually to sustain the Corps. While readiness will remain at the forefront of our resource decisions, the gap between current levels of procurement and that needed for sustainment must be eliminated if the Marine Corps is to provide the ready, capable, and decisive force needed to meet the uncertain challenges of the next century.

FIGURE 5-11: PROCUREMENT MARINE CORPS DOLLARS* (FY99 CONSTANT DOLLARS)



The PMC & PANMC budget request of \$893 million represents, in real terms, an increase of 47 percent over FY98. Figure 5-12 depicts how the PMC appropriation is allocated to budget activities in the FY99 Budget.

FIGURE 5-12: MARINE CORPS PROCUREMENT (FY99) BY BUDGET ACTIVITY (FYDP \$M)

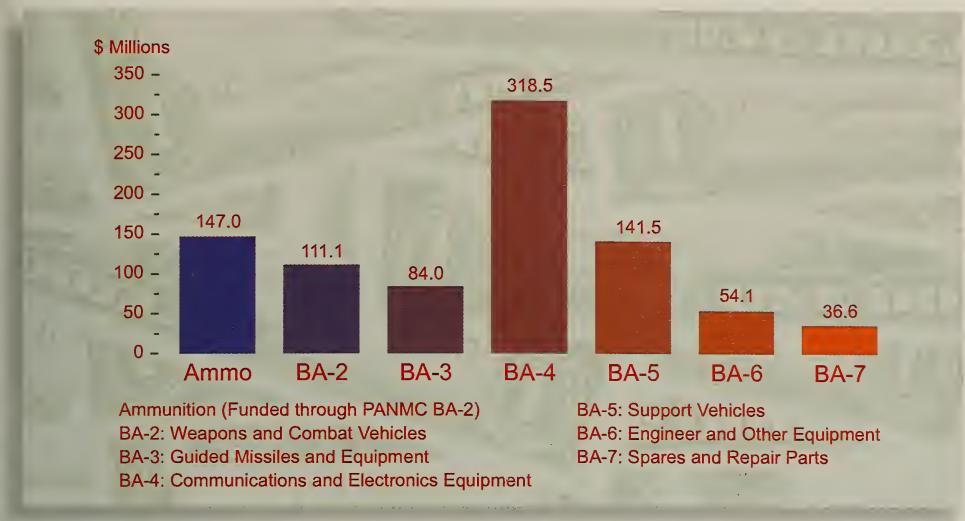


Figure 5-13: Represents R&D to support ground equipment.

FIGURE 5-13: MARINE CORPS RDT&E, N TO SUPPORT GROUND EQUIPMENT (FYDP \$M)

R&D (FYDP \$M):	FY 97	FY 98	FY 99
	266	268	306

Marine Corps Ground Equipment

Consistent with the Quadrennial Defense Review and the Marine Corps' overarching philosophy of modernization and recapitalization, the FY99 budget focuses on the development and procurement of technologies and systems that allow the Corps to make Marines and win battles for our Nation.

FY99 begins an upward trend in the pace of modernization that continues through the outyears. Several major replacement, remanufacture and modernization programs are included in this budget, such as the Light Tactical Vehicle Replacement (LTVR), the Medium Tactical Vehicle Remanufacture (MTVR) and the Amphibious Assault Vehicle (AAV) RAM Rebuild to Standard (RS). In line with the FY98

Congressional direction to accelerate the LTVR program, this budget provides for the continued procurement of LTVR in FY99. The LTVR program will replace the Marines' current aging inventory of HMMWVs. Further, the low-rate initial procurement of 240 MTVRs under multi-year procurement commences in FY99. This program will remanufacture 5-ton trucks over the next five years and provides for the economical replacement of the current medium truck fleet with enhanced off-road capabilities. Additionally, the FY99 Procurement Budget funds the initiation of the AAV7A1 RAM/RS program. The AAV RAM/RS program



provides for the upgrade of the minimum number of AAVs needed to meet our direct operational needs. It replaces the current AAV7A1 engine and suspension with Bradley Fighting Vehicle derivative components, provides for rebuilt transmissions, and rebuilds the remainder of the vehicle to original like-new standards. By upgrading a minimum number of AAVs we provide a cost-effective method to sufficiently bridge our operational requirements until the AAAV replaces the AAV7A1. This program provides for the return of mobility performance and allows affordable achievement of combat readiness.

The FY99 budget reflects an emphasis on C4I modernization to ensure connectivity and interoperability on the battlefield and throughout the Marine Corps infrastructure. In FY99 several communications and electronics initiatives are budgeted; these include the Tactical Data Network (TDN), the Digital Automated Communications Terminal (DACT), the Digital Technical Control (DTC), as well as Infrastructure

modernization efforts like Base Telecommunication and Network Infrastructure. The TDN will augment the existing MAGTF communications infrastructure to provide the commander an integrated data network, forming the communication backbone for MAGTF Tactical data systems and Defense Message System (DMS). The DTC provides the primary interface between subscriber systems/networks within a local area and long haul multi-channel transmission system to transport voice, message, data and imagery traffic. The DACT is a hand held automated message terminal that will be widely used on the battlefield. The continued funding of efforts such as Base Telecommunications and Network infrastructure ensure Marine Corps Bases are able to effectively communicate and interface with the ever modernizing battlefield.

The FY99 Marine Corps budget supports enhanced firepower with the continued multi-year procurement of the Javelin Missile, a medium range, man-portable, anti-tank weapon to replace the Dragon system. Development, prototyping and engineering efforts also continue for the Lightweight (LW) 155mm Howitzer, a replacement for the aging, operational deficient M198 howitzer. The LW155 will provide artillery fire-support with increased mobility, survivability, deployability and sustainability in an expeditionary environment. LW155 procurement funding begins in FY99 for long lead materials and support materials.

Funding for the procurement of ammunition is reflected in the Procurement of Ammunition, Navy and Marine Corps appropriation. The FY99 budget continues the effort to reach the Marine Corps goal of satisfying the combat requirement through the FYDP while meeting the annual ammunition training requirements.

A significant portion the Marine Corps FY99 ground Research and Development budget is dedicated to the AAV, which will replace the twenty year old Amphibious Assault Vehicle. This critical program is continuing in the Program Definition and Risk Reduction (PDRR) phase with Test Readiness Review (TRR) scheduled in FY99. The FY99 R&D budget continues to finance the Marine Corps led experimentation with future tactics, concepts and innovations involving both Marine and Navy forces. The Marine Corps Warfighting Laboratory is the centerpiece for operational reform in the Corps, investigating new and potential technologies and evaluating their impact on how the Marine Corps organizes, equips and trains to fight in the future. Additionally, as the DoD Executive Agent for Non-lethal Weapons (NLW), the USMC budget continues to finance NLW research and development. The procurement of NLW remains the responsibility of the individual Services.

Appendix A

How the Marines are Organized

Marines are organized as a “*force-in-readiness*” to support national needs. They are divided into three broad categories:

- Operating Forces
- Reserves
- Supporting Establishment

Operating Forces

Operating forces, considered the heart of the Marine Corps, constitute the forward presence, crisis response, and fighting power available to the CINCs. Major elements include the Marine Forces Atlantic and Pacific, Marine Corps Security Forces, and the Marine Security Guard Battalion with its detachments at embassies and consulates around the globe. About 64 percent of all active duty Marines are assigned to these operating forces.

Marine operating forces are under the command of either the Commander, Marine Forces, Pacific (COMMARFORPAC) or Commander, Marine Forces, Atlantic (COMMARFORLANT). The Marine Force Headquarters is the Marine Service component for all Marine operating forces and deals directly with the CINCs for all Marine service related functions. COMMARFOR PAC and LANT advise the CINCs on employment of Marine Forces, while equipping, training, administering, and sustaining those same forces. During combat operations, the MARFOR provides the CINC an operational Service component headquarters and theater-wide Marine Corps service support and sustainment of assigned Marine Air-Ground Task Forces (MAGTFs).

Marine Corps Security Forces and Marine Security Guard Battalion personnel operationally report to the Chief of Naval Operations and Secretary of State, respectively.

Marine Air-Ground Task Force (MAGTF)

The MAGTF (pronounced “mag-taff”) is the Marine Corps’ primary tactical organization for all missions across the range of military operations. The MAGTF provides a Combatant Commander in Chief (CINC) or other operational commander with a versatile expeditionary force for responding to a broad range of crisis and conflict situations. MAGTFs are balanced, combined arms forces with organic command, ground, aviation, and sustainment elements.

MAGTF Capabilities

MAGTF capabilities are not built merely to wait for the next amphibious assault or regional war; they are deployed every day. Through operational experience, developed procedures, and honed training routines, the Marine Corps stands ready to respond. Our organization has evolved to handle uncertain world situations and has repeatedly demonstrated its worth. Embarked aboard amphibious ships, forward-deployed MAGTFs provide decision makers with the capabilities to:

- Move forces into crisis areas without revealing their exact destinations or intentions;
- Provide continuous presence in international waters;
- Provide immediate national response in support of humanitarian and natural disaster relief operations;
- Provide credible but nonprovocative combat power just over the horizon of a potential adversary, for rapid employment as the initial response to a crisis;
- Support diplomatic processes for peaceful crisis resolution before employing immediately responsive combat forces;
- Project measured degrees of combat power ashore, at night, and under adverse weather conditions, if required;
- Introduce additional forces sequentially into a theater of operations;
- Operate independent of established airfields, basing agreements, and overflight rights;
- Conduct combat operations ashore using inherent combat service support brought into the area of operations;
- Enable the introduction of follow-on MAGTF or joint and/or combined forces by securing staging areas ashore;
- Operate in rural and urban environments or hostile nuclear, biological, and chemical situations;
- Withdraw rapidly at the conclusion of operations or remain to help restore stability to the affected areas;
- Plan and commence execution of a mission within 6 to 48 hours of receiving a warning order (dependent on size).

MAGTF Composition

The Marine Corps task organizes for combat consistent with its statutory tasking to "...provide forces of combined arms, including aviation..." by forming forces into integrated, combined-arms MAGTFs employed to accomplish assigned missions. MAGTFs are specifically tailored for rapid deployment by air and/or sea. MAGTFs are comprised of four elements:

❑ ***Command Element (CE)***. The CE contains the MAGTF headquarters, and other units that provide intelligence, communications, and administrative support in general support of the MAGTF. As with all other elements of the MAGTF, it is task organized to provide the command, control, communications, computers, intelligence, and interoperability (C4I2) necessary for effective planning and execution of all operations.

❑ ***Ground Combat Element (GCE)***. The GCE is task organized to conduct ground operations to support the MAGTF mission. It may include infantry, artillery, reconnaissance, armor, engineer, and other forces as needed. The GCE can vary in size and composition from a light, air-transportable unit such as a reinforced infantry battalion to one that is relatively heavy and mechanized, which may include one or more Marine, Army, or allied divisions.

❑ ***Aviation Combat Element (ACE)***. The ACE conducts offensive and defensive air operations and is task organized to perform those functions of Marine Corps aviation required to support the MAGTF mission. It is formed around an aviation headquarters with appropriate air control agencies, combat, combat support, and combat service support units. The ACE can vary in size and composition from an aviation detachment of specifically required aircraft to one or more Marine aircraft wings.

❑ ***Combat Service Support Element (CSSE)***. The CSSE is task organized to provide the full range of combat service support functions and capabilities necessary to support the continued readiness and sustainability of the MAGTF as a whole. It is formed around a combat service support headquarters and may vary in size and composition from a support detachment to one or more force service support groups (FSSGs).

Figure A-1: Marine Air-Ground Task Force



Types of MAGTF Organizations

Regardless of size, all MAGTFs are expeditionary. An expeditionary force is a capability vice a structure. Thus, any size MAGTF could be generally referred to as a Marine expeditionary force. However, to provide a frame of reference for general sizing, MAGTFs are categorized in the following three types:

- Marine Expeditionary Force (MEF)
- Marine Expeditionary Unit (MEU)
- Special Purpose MAGTF (SPMAGTF).

Marine Expeditionary Force (MEF). The MEF is the principal Marine Corps warfighting organization, particularly for a larger crisis or contingency, and is normally commanded by a lieutenant general. A MEF can range in size from less than one, to multiple divisions and aircraft wings, together with one or more force service support groups.

With 60 days of accompanying supplies, MEFs are capable of both amphibious operations and sustained operations ashore in any geographic environment. With appropriate augmentation, the MEF command element is capable of performing as a joint task force headquarters.

MEFs are the primary “standing MAGTFs” (i.e., they exist in peacetime as well as wartime). Currently the Marine Corps is organized

with three standing MEFs, each with a division, wing, and FSSG. The I Marine Expeditionary Force (I MEF) is located at bases in California and Arizona. The II Marine Expeditionary Force (II MEF) is located at bases in North and South Carolina, and the III Marine Expeditionary Force (III MEF) is forward-based in Okinawa and Mainland Japan. Marine component headquarters (COMMARFORLANT or COMMARFORPAC) may form smaller MAGTFs from these MEFs. The Marine Corps reservoir of combat capabilities -- the divisions, wings, and force service support groups -- are assigned to these standing MEFs.

Figure A-2



A MEF will normally deploy in echelon and will designate its lead element as the MEF (Forward).

☐ **Marine Expeditionary Unit (MEU).** Forward deployed MEUs embarked aboard Amphibious Ready Group (ARG) shipping operate continuously in the areas of responsibility of numerous Unified Commanders. These units provide the National Command Authorities and Unified Commanders an effective means of dealing with the uncertainties of future threats, by providing forward deployed units which offer unique opportunities for a variety of quick reaction, sea-based, crisis response options in either a conventional amphibious/expeditionary role, or in the execution of maritime special operations. The forward deployed MEU(SOC), forged and tested in real-world contingencies, remains the benchmark forward operating Marine force. The MEU is commanded by

a colonel and deploys with 15 days of accompanying supplies.

Prior to deployment the MEU undergoes an intensive six-month training program focusing on its conventional and selected maritime special operations missions. The training culminates with a thorough evaluation and certification as “special operations capable” (SOC).

Special Purpose MAGTF (SPMAGTF). A SPMAGTF is task organized to accomplish a specific mission, operation, or regionally focused exercise. As such, SPMAGTFs can be organized, trained, and equipped to conduct a wide variety of expeditionary operations ranging from crisis response, to training exercises, to peacetime mission. They are designated as SPMAGTF with a mission, location, or exercise name: e.g., “SPMAGTF (X),” “SPMAGTF Somalia,” “SPMAGTF UNITAS”, or “SPMAGTF Andrew.” Their duties cover the spectrum from noncombatant evacuation to disaster relief and humanitarian missions.

MAGTF Sustainability

A fundamental characteristic of a MAGTF is its ability to operate for extended periods as an expeditionary force, relying on internal resources for sustainment. All MAGTFs have inherent sustainability to be self-sufficient for planned periods. Larger MAGTFs have a deeper, broader, and more capable organic support capability. MAGTFs deploy with a portion of their accompanying supplies sufficient for a specific period of time:

- MEF - 60 days
- MEU - 15 days
- SPMAGTF - As the situation requires.

MAGTFs can augment their organic sustainability by using external support from Navy organizations, wartime host nation support (WHNS) agreements, interservice support agreements (ISSAs), and in-theater cross service support.

Maritime Prepositioning Forces (MPF)

MPFs provide an added dimension in mobility, readiness, and global responsiveness. The MPF program involves 13 ships, organized in three squadrons. These squadrons are strategically positioned in the Atlantic and Indian Oceans and in the Mediterranean Sea. The MPF program reduces MAGTF response time from weeks to days by prepositioning the bulk of equipment, and 30 days of supplies, for a 17,300-Marine force aboard specially designed ships. Personnel and selected equipment can be

airlifted quickly, using roughly 250 airlift sorties, to an objective area to join with required equipment at a secure site. Equipment and supplies can also be selectively offloaded to support smaller MAGTFs.

As graphically demonstrated in Operation **Desert Shield**, MPFs are integral to the rapid deployment of credible combat power. MPF program flexibility has been increased through selective and innovative loading plans and development of enhanced deployment options.

Unique Unified Commander Support

A CINC or subordinate commander may also require Marine forces that do not possess all elements of a MAGTF; thus, they are not given a MAGTF designation. Examples are installation security forces, engineer and medical support teams for humanitarian operations, deployments for training, law enforcement operations, and mobile training teams. In these cases, forces will be designated by the name of the senior headquarters having operational control; e.g., 1st Combat Engineer Battalion (Rein), 1st Marine Division.

❑ ***Standing Joint Task Force Headquarters (SJT福 HQ)***. Recognizing that the key element in joint operations is the Joint Task Force Headquarters, CMC directed COMMARFORLANT/Command General II MEF, and Commanding General, Marine Corps Combat Development Command to produce a plan that resulted in the Marine Corps providing a fully capable, expeditionary, SJTF HQ organized and equipped to move out on a moment's notice to meet the uncertainties of a chaotic new world. With the completion of Phase I of the resulting three-phase campaign plan, COMMARFORLANT has established the lead elements of a SJTF HQ at Camp Lejeune, NC. The SJTF HQ is focused on joint issues and serves as the standing core of any JTF HQ that CINCUSACOM, USCINCSOUTH, or USCINCEUR may ask their Marine Components to form.

❑ ***Marine Expeditionary Units (Special Operations Capable)*** COMMARFORLANT and COMMARFORPAC maintain forward-deployed MEU(SOC)s in the Mediterranean, Persian Gulf, and Pacific regions. In addition to conventional capabilities, the MEU(SOC) is augmented with selected attachments to provide enhanced capabilities. These special capabilities include:

- ❑ Close Quarters Battle
- ❑ Specialized Demolition Operations
- ❑ Clandestine Reconnaissance and Surveillance
- ❑ Maritime Interdiction Operations

- Direct Action
- Gas and Oil Platform Operations
- Tactical Recovery of Aircraft and/or Personnel
- In-Extremis Hostage Recovery
- Clandestine Recovery Operations

Air Contingency Forces. Both COMMARFOR PAC and LANT maintain air contingency MAGTFs (ACMs) in a continuous state of readiness. ACMs are air-deployable forces available to the Unified Commanders, with lead elements ready to deploy within 18 hours of notification. The ACMs provide great versatility in that they can be used as part of the fly-in echelon of a maritime prepositioning force, as reinforcement for an amphibious force, or as the lead element of a MEF. ACMs are prepared to perform the following missions:

- Stability operations (presence, humanitarian assistance, security, peacekeeping, counterinsurgency)
- Limited objective operations (non-combatant evacuation, amphibious raid, airfield seizure, counterterrorism)
- Conventional combat operations (amphibious, operations ashore, reinforcement).

The ACM will be task organized to meet the mission, the threat, and airlift availability. The size of the ground combat element can range from a reinforced rifle company, plus a battalion headquarters element, to a regimental size force, consisting of a regimental headquarters, two infantry battalions, a two-battery artillery battalion, a two-platoon reconnaissance company, a two-platoon engineer company, and appropriate aviation and combat service support elements.

Norway Prepositioning Program. Similar in concept to the MPF, but land-based, this program currently stores supplies and combat equipment at secure locations in Norway for an airlifted force. Forward positioning of equipment saves both reaction time and tremendous additional airlift assets.

Marine Corps Security Forces (MCSF). About 3,200 Marines support or augment Navy Security forces around vital Naval assets worldwide. These forces are assigned to the Chief of Naval Operations and serve as operating forces of the Marine Corps. These forces include Marine Barracks, Marine Corps Security Force Companies, two Fleet Antiterrorism Security Team (FAST) Companies which will deploy three

FAST platoons in support of COMUSNAVCENT, CINCPACFLT and COMUSNAVEUR, and a small number of cadre assigned to Navy regions to assist in training of Navy security personnel. The Marine Detachments previously assigned to aircraft carriers were disestablished in early 1998 as part as a coordinated effort to improve Naval security and force protection worldwide.

□ **Marine Security Guard Battalion.** The Marine Corps also provides forces to the Department of State for embassy security. Organized into the Marine Security Guard Battalion, these Marines are currently assigned to 121 embassies and consulates in 112 different countries. While not every American embassy or consulate has a Marine Security Guard detachment, those that do enjoy a level of prestige that is recognized throughout the world.

Reserves

In addition to active forces, force expansion is made possible by the activation of the Marine Corps Reserve, which, like the active forces, consists of a combined arms force with balanced ground, aviation, and combat service support units. Organized under the Commander, Marine Forces Reserve (COMMARFORRES), units of this command are located at 193 training centers in 47 states, Puerto Rico, and the District of Columbia.

Over the past several years, the Marine Corps Reserve has been closely integrated with the active component in our Total Force concept. The Reserves provide individuals and specific units to augment and reinforce active capabilities.

Supporting Establishment

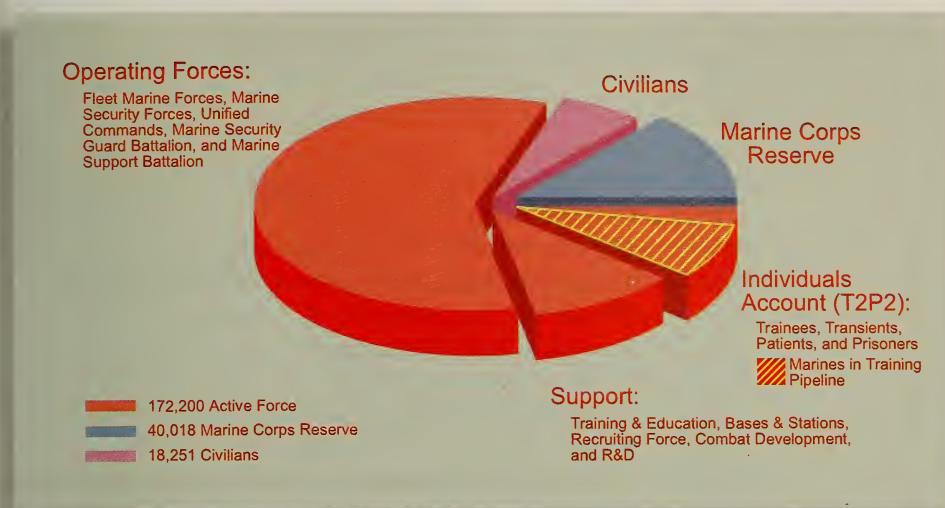
The Supporting Establishment -- 32,000 Marines -- staff our 17 major bases, training activities, formal schools, the Marine Corps Recruiting Command, the Marine Corps Combat Development Command, the Marine Corps Systems Command, and Headquarters, U.S. Marine Corps. The Supporting Establishment's contributions are vital to the overall combat readiness of the Marine Corps.

Marine Corps Total Force

Figure A-3 depicts the Marine Corps Total Force. There is a direct relationship between the size of the Marine Corps and the contribution made to our national defense. Large scale deployments, operations, and training exercises with allies are part of our training and presence requirements in peacetime. About 23 percent of our operating forces are forward-deployed during peacetime, which predicates a high deployment

tempo and a corresponding CONUS rotation base. As the U.S. retains a desire to maintain stability in areas where we have significant interests, the requirement for forward-deployed forces will continue.

FIGURE A-3: MARINE CORPS TOTAL FORCE



Appendix B

Abbreviations and Acronyms

This appendix provides a list of abbreviations and acronyms which are commonly used in Marine Corps correspondence, publications, and daily dialog. This Appendix is provided for reference purposes. Not all listed acronyms are included in this publication.

AAAV	Advanced Amphibious Assault Vehicle
AAV	Assault Amphibious Vehicle
AAWS-H	Anti-Armor Weapon System-Heavy
AAWS-M	Advanced Antitank Weapon System-Medium
ACAT	Acquisition Category
ACE	Aviation Combat Element
ACM	Air Contingency MAGTF
ACP	Aviation Continuation Pay
ACS	Advanced Countermine System
ACTD	Advanced Concept Technology Demonstration
ADCP	Air Defense Communications Platform
ADFC	Advanced Digital Fire Control System
ADM	Acquisition Decision Memorandum
ADS	Advanced Distributed Simulation
AE	Assault Echelon
AFATDS	Advanced Field Artillery Tactical Data System
AFOE	Assault Follow-On Echelon
AGLEP	Advanced Ground Laser Eye Protection
AIT	Automated Identification Technology
ALC	Area Learning Center
ALICE	All-Purpose Lightweight Individual Carrying Equipment
AMC	Air Mobility Command
ANGLICO	Air/Naval Gunfire Liaison Company
AO	Acquisition Objective
AOA	Analysis of Alternatives
AOR	Area of Responsibility
APN	Aircraft Procurement, Navy
APOBS	Antipersonnel Obstacle Breaching System
APS	Active Protection System
ARDEC	Army Research, Development, and Engineering Center
ARG	Amphibious Ready Group

ARPA	Advanced Research Projects Agency
AS	Analysis Substation
ATACC	Advanced Tactical Air Command Central
ATARS	Advanced Tactical Airborne Reconnaissance System
ATF	Amphibious Task Force
ATLASS	Asset Tracking Logistics and Supply System
ATO	Air Tasking Order
AUTODIN	Automated Digital Network
AVDTV	Armored Vehicle Drivers's Thermal Viewer
AWE	Advanced Warfighting Experiment
BA	Budget Activity/Authority
BMAR	Backlog of Maintenance and Repair
BRAC	Base Realignment and Closure
BST	Basic Skills Trainer
BU	Block Upgrade
BUR	Bottom-Up Review
C2	Command and Control
C3I	Command, Control, Communications, and Intelligence
C4I	Command, Control, Communications, Computers, and Intelligence
CAC2S	Common Aviation Command and Control System
CAEMS	Computer-Aided Embarkation Management System
CAM	Chemical Agent Monitor
CASTFOREM	Combined Arms and Support Task Force Evaluation Model
CATF	Commander, Amphibious Task Force
CAX	Combined Arms Exercise
CBIRF	Chemical/Biological Incident Response Force
CBRS	Concept Based Requirements System
CBV	Combat Breacher Vehicle
CCP	Consolidated Cryptological Program
CCS	COMINT Collection Subsystem
CCS-OS	CCS Outstation
CD	Counterdrug
CDS	Combat Development System
CE	Command Element
CECM	Communications Electronic Countermeasures
CENTCOM	Central Command

CFR	Crash, Fire, and Rescue
CG	Commanding General
CIARDs	CIA Retirement and Disability System
CIC	Combat Integration Capability
CIGS	Common Imagery Ground Surface System
CINC	Commander-in-Chief
CJTF	Commander, Joint Task Force
CMC	Commandant of the Marine Corps
CMOS	Cargo Movement Operations System
CMV	Combat Mobility Vehicle
CNA	Center for Naval Analyses
COE	Common Operating Environment
COE	Concept of Employment
COMINT	Communications Intelligence
COMSEC	Communications Security
CONUS	Continental United States
CORM	Commission on Roles and Missions of the Armed Forces
COTS	Commercial off-the-Shelf
CPG	Commandant's Planning Guidance
CPU	Central Processing Unit
CQB	Close Quarters Battle
CR	Combat Requirement
CRDEC	Chemical Research, Development & Engineering Center
CRS	Canteen Refilling System
CS	Communication Subsystem
CSAR	Combat Search and Rescue
CSS	Combat Service Support
CSSE	Combat Service Support Element
CTAPS	Contingency Theater Automated Planning System
CTT	Commanders Tactical Terminal
CV	Aircraft Carrier
CVAT	Combat Vehicle Appended Trainer
CVBG	Carrier Battle Group
DAB	Defense Acquisition Board
DACT	Digital Automated Communications Terminal
DAMA	Demand Assigned Multiple Access
DARP	Defense Airborne Reconnaissance Program
DASC	Direct Air Support Center
DAWMS	Deep Attack Weapons Mix Study
DBOF	Defense Business Operations Fund

DCP	Defense Cryptologic Program
DEPTEMPO	Deployment Tempo
DF	Direction Finding
DFT	Deployments for Training
DGIAP	Defense General Intelligence and Applications Program
DHS	Defense HUMINT Service
DIA	Defense Intelligence Agency
DICP	Defense Intelligence Counterdrug Program
DII	Defense Information Infrastructure
DIMAP	Defense Imagery and Mapping Program
DIS	Distributed Interactive Simulation
DISA	Defense Information Systems Agency
DISTP	Defense Special Technology Program
DITP	Defense Intelligence Tactical Program
DL	Distance Learning
DLC	Distance Learning Center
DMRD	Defense Management Review Decision
DMS	Defense Messaging System
DMSO	Defense Modeling and Simulation Office
DOA	Days of Ammunition
DoD	Department of Defense
DON	Department of the Navy
DOS	Days of Supply
DPG	Defense Planning Guidance
DPP	Defense Program Projection
DPRB	Defense Planning and Resources Board
DSCS	Defense Satellite Communications System
DSN	Defense Switched Network
DSRP	Defense Space Reconnaissance Program
DT	Developmental Test
DTC	Digital Technical Control
DTS	Defense Transportation System
EA	Electronic Attack
EAF	Expeditionary Airfield
EB	Enlistment Bonus
EDM	Engineering Development Model
EHF	Extremely High Frequency
ELINT	Electronics Intelligence
EMD	Engineering and Manufacturing Development
E-MAIL	Electronic Mail
EOB	Electronic Order of Battle

EOD	Explosives, Ordnance, and Disposal
EP	Electronic Protection
EPUU	Enhanced PLRS User Units
ERGM	Extended Range Guided Munitions
ESP	Extended Service Program
ESS	Electronics Intelligence (ELINT) Support System
ETSS	Extended Training Service Specialist
EW	Electronic Warfare
FAC	Forward Air Controller
FARP	Forward Arming and Refueling Point
FAST	Fleet Antiterrorism Security Team
FCIP	Foreign Counterintelligence Program
FDC	Fire Direction Center
FDS	Field Development System
FEX	Field Exercise
FH	Frequency Hopping
FHMC	Family Housing Marine Corps
FIE	Fly-in Echelon
FIIU	Force Imagery Interpretation Unit
FLC	Functional Learning Center
FLIR	Forward Looking Infrared
FLPP	Foreign Language Proficiency Pay
FM	Frequency Modulation
FMF	Fleet Marine Force
FO	Forward Observer
FOC	Full Operational Capability
FOF	Floating Offshore Facility
FOTT	Follow-on-to-TOW
FPLIF	Field Pack Large with Internal Frame
FSC2S	Fire Support Command and Control System
FSCC	Fire Support Coordination Center
FSED	Full Scale Engineering Development
FSSG	Force Service Support Group
FTE	Full-Time Equivalent
FTS	Full-Time Support
FY	Fiscal Year
FYDP	Future Year Defense Plan
FYEP	Five Year Experimentation Plan
GCCS	Global Command and Control System
GCE	Ground Combat Element
GDIP	General Defense Intelligence Program

GLPS	Gun Laying and Positioning System
GMF	Ground Mobile Forces
GOTS	Government off-the-Shelf
GPS	Global Positioning System
GTN	Global Transportation Network
HARM	High-Speed Antiradiation Missile
HAW	Heavy Antiarmor Weapon
HF	High Frequency
HMD	High Mobility Downsize
HMMWV	High Mobility, Multipurpose Wheeled Vehicle
HQMC	Headquarters, U.S. Marine Corps
HUD	Head-Up Display
HUMINT	Human Intelligence
HWTS	Heavy Weapons Thermal Sight
I2	Image Intensification
IAC	Intelligence Analysis Center
IAS	Intelligence Analysis System
ICAD	Individual Chemical Agent Detector
ICCE	Individual Combat Clothing and Equipment
IDASC	Improved Direct Air Support Center
IELD	Improved External Lift Device
IEWCS	Intelligence and Electronic Warfare Common Sensor
IFSAS	Initial Fire Support Automated System
IMI	Interactive Multimedia Instruction
IMINT	Imagery Intelligence
INTEL	Intelligence
IOC	Initial Operational Capability
IOT&E	Initial Operational Test and Evaluation
IPCOT	In-Place Continuation of Overseas Tour
IR	Infrared
IR3B	Integrated Resources and Requirements Review Board
IRR	Individual Ready Reserve
IS	Interim Standardization
ISMT	Indoor Simulated Marksmanship Trainer
ISSA	Interservice Support Agreement
IST	Infantry Squad Trainer
ITV	In-transit Visibility
JBPDs	Joint Biological Point Detection System

JCAD	Joint Chemical Agent Detector
JCS	Joint Chiefs of Staff
JFACC	Joint Force Air Component Commander
JIC	Joint Intelligence Center
JLIST	Joint Service Lightweight Integrated Suit Technology
JM	JTIDS Module
JMA/SA	Joint Mission Area/Support Area
JMASS	Joint Modeling and Simulation System
JMCIS UB	Joint Maritime Command Information System Unified Build
JMIP	Joint Military Intelligence Program
JOPES	Joint Operation Planning and Execution System
JOTS	Joint Operational Tactical System
JROC	Joint Requirements Oversight Council
JSCP	Joint Strategic Capabilities Plan
JSF	Joint Strike Fighter
JSIMS	Joint Simulation System
JSIPS TEG	Joint Services Imagery Processing System Tactical Exploitation Group
JSLNBCRS	Joint Service Light NBC Reconnaissance System
JSTARS	Joint Surveillance Target Attack Radar System
JTF	Joint Task Force
JTF HQ	Joint Task Force Headquarters
JTIDS	Joint Tactical Information Distribution System
JWARN	Joint Warning and Reporting Network
JWCA	Joint Warfighting Capability Assessment
JWFC	Joint Warfighting Center
JWID	Joint Warrior Interoperability Demonstrations
LAAD	Low Altitude Air Defense
LAAM	Light Anti-Aircraft Missile
LAI	Light Armored Infantry
LAN	Local Area Network
LAW	Light Anti-Armor Weapon
LAV	Light Armored Vehicle
LAV-AD	Light Armored Vehicle-Air Defense
LAV-FIST	LAV-Full-Crew Simulator Trainer
LCAC	Landing Craft Air Cushion
LEWDD	Lightweight Early Warning Detection Device
LHA	Amphibious Assault Ship - General Purpose
LHD	Amphibious Assault Ship - Multipurpose
LIC	Low Intensity Conflict

LLDR	Lightweight Laser Designator Rangefinder
LLI	Long Lead Item
LMCC	Logistics Movement Control Center
LMS	Lightweight Multipurpose Shelter
LNBCRS	Light Nuclear, Biological, and Chemical Reconnaissance System
LOE	Limited Objective Experiment
LPD	Amphibious Transport Dock [Ship]
LPH	Amphibious Assault Ship - Helicopter
LP/OP	Listening Post/Observation Post
LRC	Learning Resource Center
LRU	Line Replaceable Units
LRIP	Low Rate Initial Production
LTVR	Light Tactical Vehicle Remanufacture
LUT	Limited User Test
LVS	Logistics Vehicle System
LW155	Lightweight 155mm Howitzer
LWTC	Littoral Warfare Training Complex
M&S	Modeling and Simulation
MAA	Mission Area Analysis
MACCS	Marine Air Command and Control System
MACS	Magnetic Countermine System
MAG	Marine Aircraft Group
MAGIS	Marine Air-Ground Intelligence System
MAGTF	Marine Air-Ground Task Force
MARCENT	Marine Forces Central Command
MARCORSYSCOM	Marine Corps Systems Command
MARDIV	Marine Division
MARFORLANT	Marine Forces Atlantic
MARFORPAC	Marine Forces Pacific
MARFORRES	Marine Forces Reserve
MARINENET	Marine Corps Learning Network
MASINT	Measurement and Signature Intelligence
MATCD	Marine Air Traffic Control Detachment
MAW	Marine Aircraft Wing
MAW	Medium Anti-Armor Weapon
MAWTS-1	Marine Aviation Weapons and Tactics Squadron One
Mbps	Megabits per second
MBST	Marine Battle Skills Training
MBT	Main Battle Tank
MCAGCC	Marine Corps Air-Ground Combat Center

MCARMS	Marine Corps Ammunition Requirements Management System
MCAS	Marine Corps Air Station
MCASS	Marine Common Application Support Software
MCB	Marine Corps Base
MCB	Mine Clearing Blade
MCCDC	Marine Corps Combat Development Command
MCCPIP	Marine Corps Continuous Process Improvement Program
MCDN	Marine Corps Data Network
MCFSS	Marine Corps Fire Support System
MCHS	Marine Corps Common Hardware Suite
MCIA	Marine Corps Intelligence Activity
MCISU	Marine Corps Imagery Support Unit
MCM	Mine Countermeasures
MCMP	Marine Corps Master Plan
MCMSO	Marine Corps Modeling and Simulation Management Office
MCMWTC	Marine Corps Mountain Warfare Training Center
MCNR	Military Construction, Navy Reserve
MCRC	Marine Corps Recruiting Command
MCSF	Marine Corps Security Forces
MCSSC2	Marine Combat Service Support Command and Control
MCTEEP	Marine Corps Training, Exercise Employment Plan
MCTSSA	Marine Corps Tactical System Support Activity
MCWL	Marine Corps Warfighting Laboratory
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEP	Marine Enhancement Program
MEU	Marine Expeditionary Unit
MEU(SOC)	Marine Expeditionary Unit (Special Operations Capable)
MEWSS	Mobile Electronic Warfare Support System
MHE	Materials Handling Equipment
Mhz	Megahertz
MIIDS	Military Integrated Intelligence Data System
MILCON	Military Construction, Navy
MILES	Multiple Integrated Laser Engagement System
MILSTAR	Military Strategic and Tactical Relay
MLA	Medium Lift Alternative
MLRS	Multiple Launch Rocket System

MLS	Marine Load System
MNS	Mission Needs Statement
MOA	Memorandum of Agreement
MOB	Mobile Offshore Base
MOOTW	Military Operations Other than War
MOS	Military Occupational Specialty
MOUT	Military Operations on Urbanized Terrain
MPF	Maritime Prepositioning Force
MPIM	Multi-Purpose Individual Munition
MPMC	Military Personnel, Marine Corps
MPS	Maritime Prepositioning Ships
MPSRON	Maritime Prepositioning Ships Squadron
MRS	Mobility Requirements Study
MSBL	MAGTF Software Baseline
MSC	Major Subordinate Command
MSE	Major Subordinate Element
MSR	Main Supply Routes
MTACCS	Marine Tactical Command and Control System
MTT	Mobile Training Team
MTVR	Medium Tactical Vehicle Remanufacturing
MTWS	MAGTF Tactical Warfare Simulation
MWSG	Marine Wing Support Group
MWTS	Medium Weapon Thermal Sight
MULE	Modular Universal Laser Equipment
NALMEB	Norway Air-Landed MEB
NAPDD	Non-Acquisition Category Program Definition Document
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, and Chemical
NCA	National Command Authorities
NCO	Noncommissioned Officer
NCS-E(D)	Downsized Enhanced Net Control Station
NDI	Non-developmental Item
NDP	National Defense Panel
NEF	Naval Expeditionary Force
NEO	Noncombatant Evacuation Operations
NESEA	Naval Electronics System Engineering Activity
NFIP	National Foreign Intelligence Program
NDI	Non-Developmental Item
NIPRNET	Nonsecure Internet Protocol Router Network
NIS	National Input Segment
NITF	National Imagery Transmission Format

NLW	Non-Lethal Weapon
NM	Nautical Miles
NMCB	Naval Mobile Construction Battalion
NMS	National Military Strategy
NSE	Naval Support Equipment
NSF	Navy Stock Fund
NSFS	Naval Surface Fire Support
NTCS-A	Naval Tactical Command System Afloat
NVG	Night Vision Goggles
O&MMC	Operation and Maintenance, Marine Corps
O&MMCR	Operation and Maintenance, Marine Corps Reserve
OCU	Operator Console Upgrade
OMFTS	Operational Maneuver from the Sea
ONR	Office of Naval Research
OPEVAL	Operational Evaluation
OPLAN	Operation Plan
OPNAV	Chief of Naval Operations
OPP	Offload Preparation Party
OPTEMPO	Operational Tempo
ORD	Operational Requirements Document
OST	Order Ship Time
OT&E	Operational Test and Evaluation
OTEIP	Overseas Tour Extension Incentive Program
OTH	Over-the-Horizon
PAA	Primary Aircraft Authorization
PANMC	Procurement of Ammunition, Navy and Marine Corps
PASGT	Personal Armor System Ground Troops
PCS	Permanent Change of Station
PDR	Preliminary Design Review
PDRR	Program Definition and Risk Reduction
PEO STAMIS	Program Execution Officer for Standard Management Information Systems
PERSTEMPO	Personnel Tempo
PGM	Precision Guided Munitions
PGS	Precision Gunnery System
PGTS	Precision Gunnery Training System
PIP	Product Improvement Program
PITS	Portable Infantry Target System
PLGR	Precision Lightweight Global Positioning

	Receiver
PLRS	Position Location Reporting System
PMC	Procurement, Marine Corps
PME	Professional Military Education
POM	Program Objective Memorandum
PPBS	Planning, Programming and Budgeting System
PRG	Program Review Group
PSD	Propulsion System Demonstrator
PWRMS	Prepositioned War Reserve Material Stocks
QDR	Quadrennial Defense Review
QOL	Quality of Life
R3B	Resources and Requirements Review Board
R&D	Research and Development
RAC	Riverine Assault Craft
RAM	Reliability, Availability, and Maintainability
RBE	Remain Behind Equipment
RCT	Ruggedized Handheld Computer
RDT&E, N	Research, Development, Test, and Evaluation, Navy
RETS	Remoted Engagement Target System
RF	Radio Frequency
RFP	Request for Proposal
RHC	Ruggedized Handheld Computer
RO/RO	Roll-On/Roll-Off
ROC	Required Operational Capability
ROE	Rules of Engagement
ROWPU	Reverse Osmosis Water Purification Unit
RPMC	Reserve Personnel, Marine Corps
RREP	Radio Reconnaissance Equipment Program
RRR	Residual Reserve Requirement
RSTA	Reconnaissance, Surveillance, and Target Acquisition
SAAWC	Sector Anti-Air Warfare Coordinator
SAAWF	Sector Anti-Air Warfare Facility
SACC	Supporting Arms Coordination Center
SANG	Saudi Arabia National Guard
SAR	Search and Rescue
SATCOM	Satellite Communications
SCI	Special Compartmented Information
SCN	Shipbuilding and Conversion, Navy

SEAD	Suppression of Enemy Air Defenses
SECDEF	Secretary of Defense
SECNAV	Secretary of the Navy
SECREP	Secondary Repairables
SEMP	Supporting Establishment Master Plan
SEP	Soldier Enhancement Program
SESAMS	Special Effects Small Arms Marking System
SHADE	Shared Data Environment
SHF	Super High Frequency
SIDS	Secondary Imagery Dissemination System
SIE	Systems Integration Environment
SIGINT	Signals Intelligence
SINCGARS	Single-Channel Ground and Airborne Radio System
SIPRNET	Secret Internet Protocol Router Network
SLOC	Sea Lines of Communication
SMART-T	Secure Mobile Anti-Jam Reliable Tactical Terminal
SMAW	Shoulder-Launched Multipurpose Assault Weapon
SMCR	Selected Marine Corps Reserve
SNCO	Staff Noncommissioned Officer
SOC	Special Operations Capable
SOI	School of Infantry
SPMAGTF	Special Purpose Marine Air-Ground Task Force
SPMAGTF(X)	Special Purpose MAGTF (Experimental)
SRAW	Short Range Antitank Weapon
SRB	Selective Reenlistment Bonus
SRI	Surveillance, Reconnaissance, and Intelligence
SRIG	SRI Group
SRR	Strategic and Residual Requirement
SRU	Shop Replacement Units
STAR-T	SHF Tri-Band Advanced Range Extension Terminal
STOM	Ship-to-Objective Maneuver
STOVL	Short Takeoff and Vertical Landing
SUBD	Small Unit Biological Detector
SWA	Southwest Asia
SWMCM	Shallow Water Mine Countermeasures
TACAIR	Tactical Aviation
TACC	Tactical Air Command Center
TACO	Tactical Communications

TAOC	Tactical Air Operations Center
TAOM	Tactical Air Operations Module
T-AH	Hospital Ship
T-AVB	Aviation Logistics Support Ship
TBD	To Be Determined
TBMCS	Theater Battle Management Core System
TBMD	Theater Ballistic Missile Defense
TCAC	Technical Control and Analysis Center
TCC	Tactical Communications Center
TCIM	Tactical Communications Interface Module
TCO	Tactical Combat Operations
TDMA	Time Division Multiple Access
TDN	Tactical Data Network
TDS	Tactical Data System
TEG	Tactical Exploitation Group
TEMP	Test and Evaluation Master Plan
TEPOP	Training and Education Point of Presence
TERPES	Tactical Electronic Reconnaissance Processing and Evaluation System
TETS	Third Echelon Test Sets
TFDSS	Total Force Decision Support System
TLAM	Tomahawk Land-Attack Missile
TLDHS	Target Location, Designation and Hand-off System
T/M/S	Type/Model/Series
TOA	Total Obligational Authority
TOW	Tube-Launched, Optically-Tracked, Wire-Guided Missile
TPCS	Team Portable Communications Intelligence System
TPFDD	Time-Phased Force and Deployment Data
TRAP	Tactical Recovery of Aircraft and Personnel
TRE	Tactical Receive Equipment
TRHS	Tray Ration Heating System
TRSS	Tactical Remote Sensor System
TWGSS	Tank Weapon Gunnery Simulator System
TWS	Thermal Weapon Sight
TWSEAS	Tactical Warfare Simulation, Evaluation, & Analysis System
UAV	Unmanned Aerial Vehicle
UB	Unified Build
UHF	Ultra High Frequency

ULCS	Unit Level Circuit Switch
UNMIH	United Nations Mission in Haiti
UNOSOM	United Nations Operations Somalia
UNPROFOR	United Nations Protection Force
V/STOL	Vertical/Short Takeoff and Landing
VHF	Very High Frequency
VVT	Video Teletraining
WAN	Wide Area Network
WHNS	Wartime Host Nation Support
WMD	Weapons of Mass Destruction
WPN	Weapons Procurement, Navy
WWMCCS	Worldwide Military Command and Control System

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